ROUTLEDGE HANDBOOKS

Routledge Handbook of Policy Design

Edited by Michael Howlett and Ishani Mukherjee

ROUTLEDGE HANDBOOK OF POLICY DESIGN

Uniting theoretical bases and advancements in practice, the *Routledge Handbook of Policy Design* brings together leading experts in the academic field of policy design in a pioneering effort of scholarship. Each chapter provides a multi-topic overview of the state of knowledge on how, why, where or when policies are designed and how such designs can be improved.

These experts address how a new emphasis on effective policy design has re-emerged in public policy studies in recent years and clarify the role of historical policy decisions, policy capacities and government intentions in promoting a design orientation towards policy formulation and policymaking more generally. They examine many previously unexplored aspects of policy designs and designing activities that focus upon analyzing and improving the sets of policy tools adopted by governments to correct policy problems.

Ranging from the fundamentals of policy design and its place in greater policy studies, to new questions regarding policy design content and effectiveness, to contemporary design trends such as the use of digital tools and big data, the *Routledge Handbook of Policy Design* is a comprehensive reference for students and scholars of public policy, public administration and public management, government and business.

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'This excellent handbook covers the gamut of scholarship on policy design, linking processes to choices and choices to outcomes. Distinguishing between design and non-design (where there is no intention to instrumentally match ends and means to attain policy goals), the editors set the scene for a collection of chapters that address the complex processes through which policy emerges. The contributions cover policy design from different angles—from instrument choice-based versions, to policy mixes, through to the recent "design thinking" turn. For anyone wanting a comprehensive overview of where policy design research has been, and where it might be going, this book is a must.'

Jenny M. Lewis, Professor of Public Policy,
The University of Melbourne, Australia

'The study of policy design has returned to a central position in the study of public policy. This extensive collection of research on policy design demonstrates the richness of that research, and illustrates a number of important dimensions of design work in public policy. As well as the technical issues of design, the collection points to the political and social context within which design takes place. And as well as focusing on the formulation of policy as design, the papers also demonstrate that design must be considered in political and social context. This is a very high quality collection that will benefit any student of public policy.'

B. Guy Peters, Maurice Falk Professor of Government,
University of Pittsburgh

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PART 1

Policy Design

From an Old to a New Orientation

1

INTRODUCTION

The Importance of Policy Design: Effective Processes, Tools and Outcomes

Michael Howlett and Ishani Mukherjee

Introduction—The Three Components of Effective Policy Design(s)

Policy design is a branch of the policy sciences concerned with the study of policy processes. It is undertaken with the expectation that such study can generate better or improved ways to construct policies and ensure that maximizing or even optimal results are achieved from the expenditure of scarce governing resources.

But why this should be the case is not immediately apparent. That is, it has long been noted in the policy sciences, and by observers of policymaking more generally, that while some policymaking efforts are well thought out and constructed—or 'designed'—others are much more arbitrary or capricious. Many formulation situations, for example, involve information and knowledge limits or involve multiple actors whose relationships may be more adversarial or competitive than typically associated with a 'design' process and outcome ('non-design') (Schön 1988; Gero 1990). That is, not all policymaking is logic- or knowledge-driven, and it is debatable how closely policymakers approximate the instrumental logic and reasoning generally thought to characterize an intellectually driven design situation, in this field or any other (Howlett et al. 2009).

That is, it is well known that designing public policies is a difficult task for a number of reasons, including lack of resources; the existence of corrupt or inefficient bureaucracies and other policy actors who are either incompetent or motivated by values other than doing the public good; the presence of powerful veto players among both state and societal actors who can block even the best thought-out plans; problems of vague goal definition; and poor implementation, evaluation and other policy practices, among others. In these and many other instances, policy decisions and 'design' considerations may be more or less absent from policy deliberations, which may be overtly partisan or self-interested and not at all interested in marshaling evidence about 'what works, when' in order to attempt to deliver efficient or effective outcomes to policy clients or targets. In such circumstances, evidence and knowledge of best practices can be ignored, and the quality of the logical or empirical relations between policy components as solutions to problems may be incorrect or also ignored (Cohen et al. 1972; Dryzek 1983; Eijlander 2005; Franchino and Hoyland 2009; Kingdon 1984; Sager and Rielle 2013). Policy formulators or decision-makers, for example, may engage in interest-driven trade-offs or legislative or bureaucratic log-rolling between different values or resource uses or,

more extremely, engage in venal or corrupt behavior in which personal or partisan gain from a decision may trump all other evaluative criteria.

Even at the best of times, there is a high level of uncertainty in policymaking. The modern policy studies movement has always acknowledged that public policymaking commonly results from the interactions of policymakers in the exercise of power rather than knowledge, but it has also recognized that even when knowledge is predominant, this does not always guarantee the passage or effective implementation of policies or the attainment of desired results (Arts and van Tatenhove 2004; Lasswell 1958; Stone 1988). Even in the best circumstances and with the best of intentions, governments often grapple with complex problems involving situations in which they must deal with multiple actors, ideas and interests in complex problem environments that typically evolve and change over time, making it difficult to secure or retain agreement on which policy alternatives are most likely to succeed.

Nevertheless, it is also a standard trope in the field that better-designed policies are more likely to correctly identify or solve the problems they are expected to address—that is, to succeed—while poorly or non-designed ones are more likely to fail for the same reasons. The modern policy sciences were founded on the idea that accumulating and utilizing knowledge of the effects and impacts of a relatively well-known set of policy means developed over many years of state-building experience can help marshal and utilize resources and accomplish policy outcomes that enhance public value (Lasswell and Lerner 1951; Howlett and Mukherjee 2014). But exactly how such processes occur, why they should lead to effective choices of policy tools or how effective policy tool choices lead to effective outcomes are not well understood.

This is a significant gap in the field, because even in cases of well thought-out, well-intentioned or otherwise well-designed policies, failures occur from time to time (Nair and Howlett 2017; Howlett et al. 2015). This can happen for a variety of idiosyncratic reasons, such as misspecification of problem severity or a shift in the kinds of risks policies were designed to face; this may even be more structural in nature, such as when policies fail due to constitutional or other limitations on state powers (Nair and Howlett 2017).

Understanding policy design, then, is about understanding the differences between these 'design' and 'non-design' processes, their content and outcomes. Work in this area of policy design is needed; the chapters in this handbook help to develop a better understanding of the components of policy design, its vicissitudes and the logic and practices that influence design, policy, success and failure.

These studies emphasize how three aspects of policymaking must be linked together in a coherent fashion if success is to be achieved: design processes, instrument choices and policy outputs. Designs can promote either first-best (theory-inspired) or second-best (real-world) solutions, but when links between these layers do not exist or are poorly constructed, situations occur in which policymaking is often bereft of a purposive knowledge-inspired endeavor at design (see Figure 1.1).

Exploring these themes, this handbook presents a joint endeavor on the part of many authors to unite the large and burgeoning body of work on policy design into one comprehensive resource. In what follows, each of the three aspects of policy design previously mentioned are set out, along with the literature, key concepts and findings concerning them as background for the more detailed chapters that follow. A summary of the handbook structure is provided before the conclusion. Lastly, the end of this chapter presents a comprehensive reading list representing some of the key contributions that have shaped the field of contemporary policy design

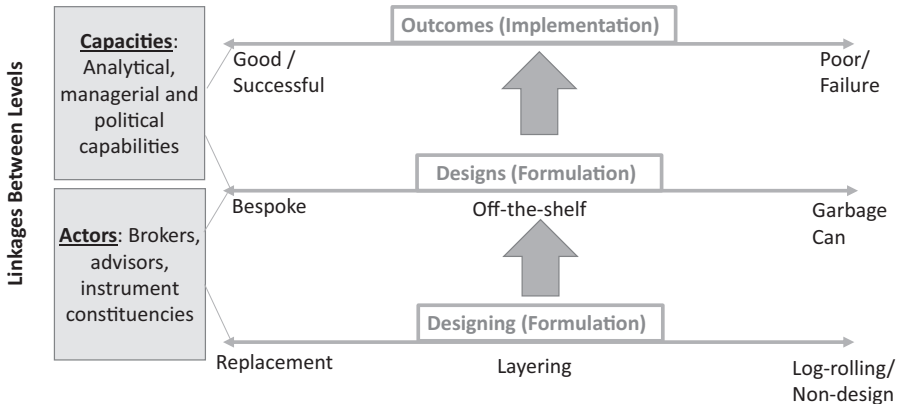

Figure 1.1 Three Elements of Design Effectiveness

What Makes for Superior Design Processes?

As Figure 1.1 illustrates, the overall supposition of design studies in the field of public policy is that a superior process of policy formulation ('designing') will lead to a superior set of policy instruments and components ('design'), which will in turn result in a superior outcome than would some alternate kind of process. Other forms of formulation—such as pure bargaining or log-rolling—are thought to be inferior and do not possess a purposive design orientation. Instrument choices and policies that emerge from them are ones expected to result in an inferior mix of policy tools and elements that, by definition, would typically generate inferior results than would a set arrived at through a better, more informed process.

The extent to which a policy process is 'informed' by knowledge and evidence, however, depends strongly on the political environment that contains it. Well established studies on the role of institutions in the policy process, for example, have helped to clarify the role of historical and political legacies, policy capacities and design intentions in affecting policy formulation processes and, more recently, in understanding how the bundling of multiple policy elements together to meet policy goals can be better understood and accomplished (Howlett and Mukherjee 2017). This work has helped advance studies of both 'design' and 'non-design' processes, which are now viewed in a spectrum, as set out in Figure 1.2.

Effectiveness, in this view, serves as the fundamental goal of any design, upon which is built other goals, such as efficiency or equity. An 'effective' policy process in this sense means that at the heart of policy design is the formulation of policy alternatives that can achieve government objectives and the idea that a formulation process that is capable of doing this is the most effective. Effective policy design thus embodies a process that falls on the more purposive and instrumental end of the formulation spectrum and entails the intentional undertaking of linking policy instruments with unambiguously outlined policy goals (Majone 1989; Linder and Peters 1984; May 2003; Bobrow 2006).

This involves the organized effort to analyze the effects that policy tools can have on the welfare and behavior of policy targets, as well as using this knowledge to craft policy responses that can, in all practicality, lead to expected policy outcomes (Weaver 2009a, 2009b; Bobrow and Dryzek 1987; Sidney 2007; Gilabert and Lawford-Smith 2012).

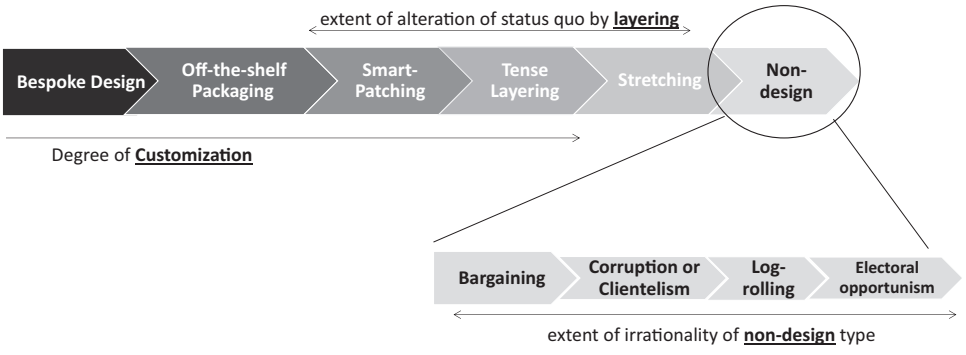

Figure 1.2 Design and Non-Design Policy Processes

It is understood that policymakers face various degrees of uncertainty (that comes with limited evidence) as well as ambiguity (that results due to the multiple ways available for understanding a policy problem) (Zahariadis 2008; Cairney 2012, 2016); it is also understood that the knowledge used to inform design can be socially embedded in relationships of political authority (Strassheim and Kettunen 2014). While these considerations are thought to have a strong bearing on how effectively a policy formulation process guided by the design orientation is able to translate policy problems into feasible policy means, they are not, however, thought to completely negate the possibility of design occurring (Turnbull 2017).

What Makes for Superior Tool Choices?

The second level of design activity that must be taken into consideration concerns the actual design itself. That is, not only must a policy process be an effective one, but the mix of tools that emerges from it must also be the same. Policy instrument studies have a long history, but in recent years a greater emphasis upon the effectiveness of tool mixes, rather than individual tool choices, has been a hallmark of the discipline (Hood 2007; Howlett 2011). These studies have increased awareness of the many dilemmas that can appear in the path of the development of effective policy tool or 'toolkit' designs as well as the realities of policy implementation that they face on the ground (Peters and Pierre 1998; Klijn and Koppenjan 2012; Doremus 2003; Sterner 2003).

Early studies of individual policy tools and tool types provided only limited insights into the complex arrangements of multiple policy instruments commonly found in all policy fields (Jordan et al. 2011, 2012; Givoni 2013). However, they did provide detailed considerations as to the strengths and weaknesses, and pre-requisites, of many tools, which have greatly aided considerations of the design of policy mixes.

Moreover, while most older literature on policy tools focused on single instrument choices and fairly simple designs (Tupper and Doern 1981; Salamon 1989; Trebilcock and Prichard 1983), some early students of policymaking, like Dahl and Lindblom, Edelman, Lowi and others, had more flexible notions of the multiple means by which governments can give effect to policy and the reasons why different kinds of tools were effective. These helped inform modern design studies (Dahl and Lindblom 1953; Kirschen et al. 1964; Edelman 1964; Lowi 1966) and considerations of the effectiveness of policy mixes.

Mixes are combinations of policy instruments that are expected to achieve particular policy objectives and are generally seen as more efficient and effective in doing so than single instrument uses (Gunningham et al. 1998). Mixes are complex because some instruments may work

well with others by nature—as is the case with 'self-regulation' set within regulatory compliance frameworks (Gibson 1999; Grabosky 1994; Trebilcock et al. 1979)—while other combinations may not, such as, notably, independently developed subsidies and regulation. Other mixes may have evolved in certain ways that undermine, or improve, their effectiveness, while others may have never been very effective in the first place and remain so.

Contemporary design studies have engaged in a lengthy discussion as to how to better integrate policy mixes so that multiple instruments are arranged together more effectively in sometimes very complex portfolios of policy goals and means (Gunningham et al. 1998; Doremus 2003; Briassoulis 2005b; Howlett 2011; Yi and Feiock 2012; Peters et al. 2005; Jordan et al. 2011, 2012), often with a multi-level governance component (del Rio and Howlett 2013).[1]

These horizontal and vertical variations have significant implications for both the number and type of actors involved in policy design and the processes through which formulation unfolds, as well as for the complexity of design itself. Vertical design contexts that cut across sectors and governments require greater efforts toward achieving administrative coordination and policy integration suitable to the complexity of context, while horizontal mixes generally do not. In the former situation, for example, relevant coordination needs to be in place between different administrative levels and across policy subsystems, but these are not needed in simpler horizontal contexts. The configuration of elements in a vertical mix must relate to preferences for different instruments in multiple sectors and governments rather than just among a single set of actors (Freeman 1985; Howlett 2009). And shifts in these preferences over time also require special handling and analysis (Briassoulis 2005a, 2005b).

The components of such mixes include policy goals and policy means at various levels of generality (Howlett 2009; Kern and Howlett 2009; Cashore and Howlett 2007). Design and instrument selection in these contexts "are all about constrained efforts to match goals and expectations both within and across categories of policy elements" (Howlett 2009, p. 74; see Figure 1.3).

	Policy Content		
Policy Content	**High Level Abstraction (Policy-Level)**	**Operationalization (Program-Level)**	**On-the-Ground Specification (Measures-Level)**
Policy Ends or Aims	**POLICY GOALS What General Types of Ideas Govern Policy Development?** (e.g. environmental protection, economic development)	**PROGRAM OBJECTIVES What Does Policy Formally Aim to Address?** (e.g. saving wilderness or species habitat, increasing harvesting levels to create processing jobs)	**OPERATIONAL SETTINGS What Are the Specific On-the-Ground Requirements of Policy?** (e.g. considerations about sustainable levels of harvesting)
Policy Means or Tools	**INSTRUMENT LOGIC What General Norms Guide Implementation Preferences?** (e.g. preferences for the use of coercive instruments or moral suasion)	**PROGRAM MECHANISMS What Specific Types of Instruments Are Utilized?** (e.g. the use of different tools such as tax incentives or public enterprises)	**TOOL CALIBRATIONS What Are the Specific Ways in Which the Instrument Is Used?** (e.g. designations of higher levels of subsidies, the use of mandatory vs voluntary regulatory guidelines or standards)

Figure 1.3 The Components of Policy Mixes

Source: Howlett and Rayner (2013, p. 8).

While the choice of a specific instrument could be made on essentially technical grounds, according to criteria such as efficiency, cost or effectiveness, it would also be affected by the political preferences of interest groups and governments as well as a variety of sociological and ideological constraints that would also inform tool choices and preferences.

Similarly, in his pathbreaking early works on public policymaking, for example, Harold Lasswell (1951), a political psychologist by training, conceived of the main instruments of politics as involving, among other things, the manipulation of symbols, signs and icons that rely on an individual's affections and loyalties to particular ideas and actors, in addition to financial and other kinds of incentives and disincentives subject to more utilitarian calculations. Lasswell noted the extent to which governments could affect every aspect of policymaking through such manipulations varied depending upon the circumstances and actors involved in any given context. He argued that a principal task of the policy sciences must be to understand the nuances of these situations and calibrate their actions and their effects accordingly (Lasswell 1954, 1971; Doern and Phidd 1983; Doern and Wilson 1974).

Achieving effectiveness with respect to deploying such policy portfolios relies upon ensuring mechanisms, calibrations, objectives and settings display 'coherence,' 'consistency' and 'congruence' with each other (Howlett and Rayner 2007). The literature on the subject has highlighted several key principles, which can inform policy instrument choice considerations based on particular instrument characteristics in mixes and individually. These include:

- **Parsimonious tool use:** This is the axiom that suggests that the optimal ratio of number of tools per targets is 1:1, and that the number of policy tools in a mix should match the number of goals or objectives that are being pursued (Tinbergen 1952, Knudson 2009).
- **Moving up the scale of coercion in sequential instrument choices:** This principle of design suggests that the sequence of choices matter and that tool choices should move up the spectrum of government coercion as needed from minimum to maximum (Doern 1981; Doern and Phidd 1983; Doern and Wilson 1974; Tupper and Doern 1981; Howlett 1991).
- **Matching tool capabilities and target behavior:** This consideration encompasses the behavioral component of policy design and tool choice. While much of the earlier work in this area has focused on 'getting the incentives right,' the influence of contemporary behavioral economics and behavioral studies has led to the acknowledgment that members of the public can display a variety of behavioral responses to policy impetuses ((Weaver 2009b; Lynn 1986; Schneider and Ingram 1990a; Shafir 2013; May 2005a, 2005b; May and Jochim 2013; Kaine et al. 2010; Duesberg et al. 2014; Maor 2013, 2015, 2016; Lewis 2007; Corner and Randall 2011; Taylor et al. 2012; Duesberg et al. 2014; Schneider and Ingram 1993, 2005; Grabosky 1995; Weaver 2009a, 2009b, 2013, 2015; Winter and May 2001; Ariely 2010; Thaler et al. 2010; Thaler and Sunstein 2009; Mulgan 2008; Bason 2014).
- **Aiming for coherence, consistency and congruence among policy components**: Policies are composed of several elements, and some correspondence across these elements is required if policy goals are to be integrated successfully with policy means. (Cashore and Howlett 2007). These include criteria such as 'consistency' (the ability of multiple policy tools to reinforce rather than undermine each other in the pursuit of policy goals), 'coherence' (or the ability of multiple policy goals to co-exist with each other and with instrument norms in a logical fashion), and 'congruence' (or the ability of goals and instruments to work together in a unidirectional or mutually supportive fashion) (Lanzalaco 2011; Howlett and Rayner 2007; Kern and Howlett 2009).
- **Maximizing complementarity and minimizing dissonance**: A major issue for policy design studies is the fact that not all of the tools involved and invoked in a mix are inherently

complementary (Tinbergen 1952; Grabosky 1995; Gunningham et al. 1998; Gunningham and Sinclair 1999; Del Río et al. 2011; Boonekamp 2006), in the sense that they evoke contradictory responses from policy targets (Schneider and Ingram 1990a, 1990b, 1993,1997, 2005). A key principle of current policy design thinking, therefore, is to try to maximize supplementary effects while minimizing counterproductive ones. 'Smart' design implies creating packages that take these precepts into account in their formulation or packaging (Gunningham et al. 1998; Gunningham and Sinclair 1999; Eliadis et al. 2005).

What Leads to Designs Being Chosen That Can Lead to Superior Outcomes?

The third consideration of design effectiveness concerns the link between the policy mix output and the outcome achieved (deLeon 1988). This has to do with the extent to which a first-best or second-best policy design is actually selected and put into practice. Just as was the case with single instrument and mix characteristics, it is also possible to highlight several design principles that flow from the analysis of design context above. These include the question of goodness of fit of proposed designs with pre-existing governance preferences and the need for an accurate analysis of the degrees of freedom designers have to innovate.

A host of factors come into play and can affect how different governments choose different possible mixes of instruments. The extent to which this choice is led by design considerations is affected by the particular mix of partisan, electoral, legislative and other preferences governments have, including their habits and historical *modus operandi*. The latter subject saw treatment in some earlier treatment in studies on 'policy styles,' for example, which identified common patterns and motifs in the construction of typical policy designs in different jurisdictions reflecting these concerns (Richardson et al. 1982; Howlett 2004). Contemporary studies have taken this work to heart in locating mix decisions within governance arrangements and existing policy regime preferences (Howlett 2009). In other words, the design of policy mixes can encompass the need to ensure a good fit not only between packages of tools and government goals but also their institutional and behavioral contexts at specific moments in time (Considine 2012; Lejano and Shankar 2013).

Such decisions can be systematically modeled and analyzed in terms of their effects on the process of policy designing. Differentiating between design spaces that are simple and more complex, for example, is a powerful way of thinking about these relationships (Howlett 2004; Howlett et al. 2006; Howlett 2011). Figure 1.4 presents a schematic illustrating how two different contextual aspects of policymaking—having a design intention and the capacity to carry it out or not—create different policy formulation spaces that enable very different policy design processes and outcomes

		Level of Government Knowledge and Other Constraints	
		High	**Low**
Government Formulation Intention	**More Instrumental**	***Capable Policy Design Space*** *Relatively unconstrained formulation via design is possible*	***Poor Policy Design Space*** *Only partially informed or restricted design is possible*
	Less Instrumental	***Capable Political Non-Design Space*** *Relatively unconstrained non-design processes are possible*	***Poor Political Non-Design Space*** *Only poorly informed non-design is possible*

Figure 1.4 Types of Policy Formulation Spaces: Situating Design and Non-Design Processes and Outcomes
Source: Modified from Chindarkar et al. (2017).

Level Dimension	INDIVIDUAL	ORGANIZATIONAL	SYSTEMIC
ANALYTICAL	**Analytical Capacity**	**Technical Capacity**	**Knowledge System Capacity**
MANAGERIAL	**Managerial Capacity**	**Administrative Capacity**	**Governance Capacity**
POLITICAL	**Political Acumen Capacity**	**Political Resource Capacity**	**Legitimation Capacity**

Figure 1.5 Policy Capacity, Capabilities and Competences

to emerge. This lays out a set of formulation processes lying between the intention and ability to undertake purposive, instrumental policy design and the intention to meet more political goals, coupled with the presence of significant policy resource constraints or tool lock-in affects.

As Figure 1.4 suggests, the nature of the constraints on government intentions can negatively affect both design and non-design processes and result in poor outcomes in specific sectors. While in the case of either a design or non-design situation high government capacity is a significant pre-requisite for success, the same is true of a lack of capacity. The worst situation for design is a politicized, religious or ideologically driven policy process with few governing resources. However, even when these values dominate, capacity remains a critical pre-requisite for successful formulation and implementation.

Having the necessary skills or *competences* to make policy is thus crucial to policy and governance success. However, they also rely on their availability and the availability of adequate resources to allow them to be mobilized. These resources or *capabilities* must exist at the individual, organizational and system levels in order to allow individual policy workers and managers to participate in and contribute to designing, deploying and evaluating policies. It includes not only their ability to analyze but also the ability to learn and adapt to changes as necessary (Wu et al. 2015; see Figure 1.5).

Conclusion

Transforming policy ambitions into practice is a complex process, and intentionally creating the best possible arrangement of policy elements is not always the first item on a government's agenda, nor necessarily within its reach. Many noble efforts of policymakers have failed due to poor design capacity or lack of desire or inability to alter elements of existing policies in a more logical, instrumental fashion (Howlett 2012). These experiences have led to a greater awareness of the various obstacles that can present themselves to policy design efforts and have gradually fueled a desire for better understanding the unique characteristics of policy formulation processes and the spaces and contexts in which design efforts are embedded.

As the discussion here has shown, design and non-design formulation processes both vary along several important dimensions. For design situations—that is, those characterized by a government desire to systematically match ends and means in the attainment of policy goals—the processes vary according to the nature of the resources available for design purposes and the constraints imposed by policy legacies. The former often determine the quality of the design effort and the design itself, while the latter generates contexts in which processes such as patching and stretching unfold. In a more non-design world, where the intention to instrumentally design is lacking, constraints on outcomes also exist, as do different processes that vary in their distance from the design ideal of public service and improvement of the public good through better information and knowledge utilization and management efforts (Rotberg 2014).

Students of policy design must be aware of these different contexts, processes and outcomes and be able to properly and accurately assess the situations governments are in or want to be in while developing policy options and when making recommendations and providing advice to governments. More systematic study of the formulation contexts and processes set out above can help move this area of policy design studies forward, and this is what this book sets out to achieve.

The research agenda of the book is focused on questions that an earlier literature on the subject largely neglected, such as the trade-offs existing between different tools in complex policy mixes and how to deal with the synergies and conflicts that result from tool interactions, as well as the different means and patterns—such as layering—through which policy mixes evolve over time (Thelen 2004; Thelen et al. 2003). This temporal orientation highlights the complex processes through which policies emerge over time and raises issues of how to distinguish between design and other formulation and decision-making processes and the frequency or likelihood of occurrence of each.

The Organization of the Book

Based on the above considerations and observations, policy design thinking can be seen to have covered much ground over the last four to five decades. This handbook is organized into six major sections in order to capture the insights of the succeeding waves of design thinkers who have grappled with the three levels of design activity outlined above.

Part 1 covers the main theoretical contributions to the field of policy design. Including this introduction, the first four chapters that constitute Part 1 discuss the development of the discipline from early thinking to the contemporary. In Chapter 2, Howlett unpacks the different components of policy design that define policy instrument choices resulting from a nested or embedded relationship within a larger framework of established governance modes and policy regime logics. Successful policy design in this conceptualization requires that policy aims, objectives and targets be coherent; that implementation preferences, policy tools and tool calibrations should also be consistent; and that the aims and tools should also be congruent and convergent.

In Chapter 3, Rogge then goes deeper into the complexity of policy mixes and the departure of design thinking from the consideration of single policy tools and towards a greater emphasis on their combination and resulting interactions. In doing so, this chapter provides an overview of policy mix research while outlining implications for future research.

Blomkamp in Chapter 4 draws on relevant literature on participatory design, design thinking and public-sector innovation, to explores the meaning and potential of co-design in the context of public policy.

Part 2 then discusses the strategic elements of policy design. Focusing on instrument choice, Howlett (Chapter 5) outlines the nature of both the traditional 'substantive' tools of policymaking, such as regulation and public ownership, with which designers work, as well as the 'procedural' tools such as the design of advisory committees, public hearings, websites, judicial review processes and others, and how they are often combined together in policy bundles or portfolios. In Chapter 6, Oinas-Kukkonen and Harjumaa focus on the methods used to develop persuasive designs, that is, ones that are capable of achieving their ends at minimal expense. In Chapter 7, Howlett then examines the strategic aspects of design by considering the heterogeneous behavioral characteristics and preferences of policy targets. Although often assumed to act as rational utility maximizers susceptible to shifts in apparent gains and losses linked to policy incentives and disincentives, he points out how the actual behavior of policy recipients needs to be more carefully examined and understood in each design situation and scenario. Complementing these

chapters, Mintrom and Luetjens (Chapter 8) distill the essence of design thinking and its applicability to policy development by reviewing five design thinking strategies: (1) environmental scanning; (2) participant observation; (3) open-to-learning conversations; (4) mapping; and (5) sensemaking. Recent examples from Australia and New Zealand are used to illustrate how these strategies have been incorporated into policymaking efforts. In Chapter 9, Howlett, Mukherjee and Rayner discuss the temporality of policy design, how evolutionary processes affect policy designs and designing, why many existing policy mixes are sub-optimal and how this can be improved.

Part 3 moves from the components of design to focus on the topic of agency and the actors involved in designing. Considine (Chapter 10) focuses on public policy expertise and considers the cognitive contribution of high-level specialists in policymaking through approaches that rest upon propositions in regard to goal emergence, pattern recognition, anticipation, emotions engagement, fabulation, playfulness and risk protection. Mayer and colleagues (Chapter 11) extend this focus on policy actors in design to specifically consider the role of different types of policy analysts. This chapter provides a framework for positioning their different perspectives and for highlighting the implications of each perspective when designing or evaluating policy. Voß and Simons (Chapter 12) then introduce the concept of 'policy instrument constituencies' that form around the development and promotion of particular policy instruments and help define the social dynamics of the 'supply side' of policy design. Chapter 13 by Hustedt examines how the range of actors critical for transmitting scientific and bureaucratic knowledge into policy design can be thought of as members of a 'policy advisory system and how' they can influence instrument choice. Chapter 14 by Siddiki delves into the politics of policy design by discussing how policy activities are delegated and whether policy conflict is associated with the delegation of policymaking and implementation responsibilities in governance venues between government and non-governmental actor.

Picking up on the theme of instrument choice and using Christopher Hood's fourfold classification of policy tools as a guide, Part 4 organizes the contemporary state of knowledge into the basic types of tools that make up a policy mix: Hood's nodality, authority, treasure and organizational (NATO) policy instruments. Kuehnhanss (Chapter 15) discusses recent behavioral insights into the operation of classic nodality tools. 'Nudges' are understood here as a distinct category of such tools, and the chapter shows how governments have recently, in the creation of 'nudge-units' and the running of (randomized-control) policy trials, on the one hand, and the use of targeted information dissemination in form of labeling, default rules, and social norm nudging, on the other hand, implemented these in many policy areas. Freiberg (Chapter 16) examines authority tools, various forms of authorization and the reasons for their enduring popularity as well as the relationship between private authorizers and government, their effects on competition and the burdens they impose on regulatees. Chapter 17 by Steenblik provides a thorough account of subsidies as a special category of treasure-based policy instruments. Chapter 18 by Lægreid then looks at organizational tools, focusing on governance capacity and links to different reform trends, from privatization and partnerships to collaboration and co-production. Longo, Chapter 19, continues this discussion, focusing on the advent of digital tools and the emergence of rapid policy design on the part of government actors.

Part 5 returns to the design space idea, examining the conditions and pre-conditions necessary for effective policy design to unfold. Howlett and Mukherjee (Chapter 20) consider the distinction between the various modalities of design processes and how they are distinguished from non-design scenarios. In Chapter 21, Tosun and Treib discuss the impact that dominant governance styles can have on policy designs, arguing that implementation styles vary across different types of policy design, especially in so far as it involves both the monitoring and enforcement

efforts undertaken by public actors. In Chapter 22, Bali and Ramesh deliberate further upon the capacities, grounded in effective problem solving, that are necessary for policy design. This chapter presents a framework organizing the sets of resources that governments require to ensure that the design of a policy or program is capable of achieving its intended goals. An example of a co-design technique—crowdsourcing—is discussed by Taeihagh in Chapter 23, who examines its technicalities and implications for the policy process. Picking up on the earlier theme of customization of policy responses, in Chapter 24 Mukherjee and Bali discuss the distinction between 'bespoke' or tailored policy designs and 'off-the-shelf' designs that can result from borrowing, emulation and policy transfer and diffusion, a key area of interest in contemporary design studies.

Having covered the state of theoretical knowledge as well as operational considerations in policy design, Part 6 looks in more detail at the conditions and criteria for attaining and assessing design effectiveness. In Chapter 25, Mukherjee and Howlett expand upon the concept of design effectiveness, understood as espousing either 'first-best' spaces, which most ideally align design contexts and tool mixes with singular instrument calibrations to address policy goals with the best means possible, or 'second-best' scenarios that must work within constraints and limitations imposed by past policy choices and of design legacy. Howlett and Rayner (Chapter 26) then go deeper into this notion of effectiveness by assessing the reasons why many policy mixes are sub-optimal and the consequences this has for policy design. The chapter adds in the dimensions of 'intentionality,' 'context,' 'goodness of fit' and 'degrees of freedom' to earlier thinking about policy integration in order to more precisely specify the impact of context on policy design decisions and the practical activities required to enhance policy consistency, coherence and congruence in mixes. Echoing these principles, in Chapter 27 Del Rio proposes the main elements of a theoretical and methodological framework to assess the success of complex policy mixes, one that highlights the conflicts and contradictions existing between individual instruments within those mixes and how they might be mitigated. The need for designs that stress agility and robustness is then explored by Capano and Woo in Chapter 28. As the final chapter, Taeihagh (Chapter 29) offers a generic framework for the analysis and ranking of policy instruments that can aid in the analysis of the proper sequence in which design elements should be deployed.

Note

1. Thus, it is possible, for example, to categorize policy mixes in terms of whether they are single 'level' mixes and those with a more complex structure. That is, in addition to the 'horizontal' issue addressed by many students of the subject—pertaining to the kind of relationships existing between tools, goals and policies within a single level of government and sector of policymaking—a second, 'vertical' dimension is often present. This vertical dimension involves not just the number of instruments, goals and policies found in a mix, but also the number of policy sectors they involve and the number of governments active in policy formulation in this area (del Rio 2009; Howlett and del Rio 2015). Such a framework allows room for many more complex interactions between bundle elements than typically envisioned or analyzed in existing studies.

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2

THE CONTEXTS AND COMPONENTS OF POLICY DESIGN

Governance Modes and Policy Regimes

Michael Howlett

Introduction: The Components and Contexts of Policy Design

A failure to recognize the multi-level or embedded nature of public policies has been a hallmark of most literature on the subject of policy instrument choices and a source of much theoretical and terminological confusion (Trebilcock and Hartle, 1982; Bemelmans-Videc et al., 1998; Peters and van Nispen, 1998; Salamon, 2002). Policy goals and means exist at different levels of abstraction and application, and as a result, policies are comprised of a number of components or elements, not all of which are as amenable to design as others (Howlett, et al. 2006).

Defining and thinking about policies and policymaking as multi-level, nested phenomena highlights how policy designs and instrument choices are constrained efforts to match goals and expectations both within and across categories of policy elements (Keohane, Revesz and Stavins, 1998; Howlett, 2009). This multi-level analysis helps explain some of the real complexity and difficulties involved in successful policy design (Bobrow, 2006; Bobrow and Dryzek, 1987), while the fact that the choices and decisions made at each level can usefully be viewed as co-determining each other in a form of embedded or 'nested' relationships helps explain the severely constrained nature of actual policy instrument choices (Veggeland, 2008; Lodge, 2008; Feiock, Tavares and Lubell, 2008; Kooiman, 2008).

That is, the range of choices left at the micro level of concrete, targeted policy tool calibrations is restricted by the kinds of meso-level decisions made about policy objectives and policy tools. Both of these, in turn, are restricted by the kind of choices made at the highest or meta level of general policy aims and implementation preferences. This suggests that successful policy design requires that all levels of policy aims, objectives and targets be coherent; that implementation preferences, policy tools and tool calibrations be consistent; and that, within and across levels, policy aims and instruments be congruent and convergent (Schneider and Ingram, 1990a, 1990b, 1993, 1994, 1997).

Nested Policy Instrument Choices: The Three Levels of Policy Instrument Choices for Policy Design

Designing successful policies requires a model of policy tool choice that fully takes into account the multiple levels of policy elements or components as well as the interlinkages that exist across and between each 'level' or 'order' of policy, and the need for these to be harmonized both within and across levels (Howlett, 2009). It is important to recognize in this model that deliberations of goals and means are not independent of each other; their discussion is related to the extent that the articulation of goals involves due consideration of what is feasible, or possible, to achieve at any given conjuncture. The selection of means is also dependent on the nature of the goals to be pursued.

A typical substantive policy instrument choice involves the prior adoption of some very abstract general 'aims' or goals, such as, for example, in the cases of criminal justice or education policy, attaining a just society or a prosperous one, along with a set of less abstract 'objectives' actually expected to achieve those aims, such as, in the examples provided above, reducing crime or providing better educational opportunities to members of the public. Further, those objectives themselves must be concretized in a set of specific targets or measures that allow policy resources to be directed towards goal attainment, such as reducing specific types of crimes to specific levels within specified periods of time or increasing post-secondary educational attendance within some set temporal period (Stavins, 2008; Kooiman, 2008).

Similarly, the means or techniques for achieving these goals also exist on several levels, from highly abstract preferences for specific forms of policy implementation, such as a preference for the use of market, government or non-profit forms of organization to implement policy goals in areas such as healthcare or crime prevention; to the more concrete level of the use of specific governing tools or mechanisms, such as regulation, information campaigns, public enterprises or government subsidies to alter actor behavior in order to promote or increase wellness or prevent crime; to the most specific level of deciding or determining exactly how those tools should be 'calibrated' in order to achieve policy targets, such as providing a specific number of additional police on the streets within a specified period of time, or a specific level of subsidy to non-profit groups to provide additional hospital beds or other types of health services within the same set period of time (Howlett, 2005; Stavins, 2008).

Following this logic, the six principal 'components' of public policies involved in policy design are set out in Figure 2.1.

Improved policy design requires understanding not only the linked nature of goals and means, but also the nature of their relationship in each of the different orders of policy: from governance mode to policy regime logic to instrument calibration. While, in practice, goal discussions can and do proceed without necessarily involving an accurate or realistic assessment of the capabilities of more concrete policy tools or their possible calibrations, this is a contributing factor to policy failure through improper design, just as a bridge can fail from inaccurately assessing the load-bearing strength of the materials used in construction. It is also the case that consideration of means can occur in the absence of discussion of goals, a second common source of policy failure, just as a failure to properly consider the loads a structure must bear can lead to its collapse even if its engineering and materials are otherwise excellent (Bovens and t'Hart, 1996).

		High Level Abstraction	*Policy Level Program Level Operationalization*	*Specific On-the-Ground Measures*
Policy Component	*Policy goals*	**General abstract policy aims** The most general macro-level statement of government aims and ambitions in a specific policy area	**Operationalizable policy objectives** The specific meso-level areas that policies are expected to address in order to achieve policy aims	**Specific policy targets** The specific, on-the-ground, micro-requirements necessary to attain policy objectives
	Policy means	**General policy implementation preferences** The long-term preferences of government in terms of the types of organizational devices to be used in addressing policy aims	**Operationalizable policy tools** The specific types of governing instruments to be used to address program-level objectives	**Specific policy tool calibrations** The specific 'settings' of policy tools required to attain policy targets

Figure 2.1 Components of Public Policies Involved in Policy Design

Source: Howlett (2009).

Level 1: Governance Arrangements—Determining Abstract Policy Aims and General Implementation Preferences

High-level abstract 'macro' policy goals typically vary in accordance with the nature of the particular set of political actors, ideas and institutional rules that are prevalent in that jurisdiction at the moment at which policy deliberations and decision-making takes place (Howlett and Ramesh, 2003; Moore, 1988; Braun, 1999).

This would seem to auger for a situation in which design principles for calibrating specific policy tools would be very difficult to develop and instrument choice decisions would be made on a largely ad hoc, case-by-case basis. However, while the specific content of abstract policy goals will change from context to context, it has often been observed that high-level government goals and implementation preferences are not random but rather tend to cluster over time into favored sets of ideas and instruments, or '*governance modes*,' which are used over a wide range of policymaking contexts (Hood, 1983, 1986; Howlett, 1991). The existence of these fairly long-term and stable governance arrangements helps explain relatively constant general implementation preferences, because these derive from and are constrained by the same set of factors that influence and inform the development and articulation of abstract policy aims (Kooiman, 2000, 2008; Dunsire, 1993; Kooiman, 1993).

Mode of Governance	*Overall Governance Aim*	*Implementation Preference*
Legal Governance	Legitimacy and compliance through the promotion of law and order in social relationships	Legal system: legislation, law, rules and regulations
Corporatist Governance	Controlled and balanced rates of socio-economic development through the management of major organized social actors	State system: plans and macro-level bargaining
Market Governance	Resource/cost efficiency and control through the promotion of small- and medium-sized enterprises and competition	Market system: auctions, contracts, subsidies and tax incentives and penalties
Network Governance	Co-optation of dissent and self-organization of social actors through the promotion of inter-actor organizational activity	Network system: collaboration and voluntary associational activity and service delivery

Figure 2.2 Modes of Governance

Source: Modified from Considine, M. *Enterprising States: The Public Management of Welfare-to-Work*. Cambridge, Cambridge University Press, 2001; and English, L. M. and M. Skellern. "Public-Private Partnerships and Public Sector Management Reform: A Comparative Analysis." *International Journal of Public Policy* 1, no. 1/2 (2005): 1–21.

Mark Considine and his colleagues have investigated these arrangements and linkages and identified four common governance modes found in modern liberal-democratic states, which they relate to specific policy foci, forms of state-society interactions and overall governance aims (Figure 2.2).

These different modes involve different preferences for general kinds of substantive and procedural policy instruments expected to attain the general aim of government in each sub-type. Different countries and sectors share these styles, and they are the first important overall determinant of policy design parameters in specific policy and issue areas. The existence of such governance modes means government policy designers typically work within a set of *pre-established* abstract aims and implementation preferences. These affect the articulation of more concrete policy elements such as policy objectives and tools, as well as policy targets and tool calibrations. Such pre-established aims and preferences do not necessarily lead to sub-optimal policy outcomes in specific contexts but can be thought of as the policy equivalent of overall aesthetic preferences in architecture or fashion, resulting in identifiable overall trends or eras such as, in the architectural analogy, modern, baroque or classical.

Historically, in many countries outside the U.S., the preferred instruments for policy implementation have been configured as largely legal and corporatist rather than market-based, but the context, style and substance of the marketplace has increasingly tended to infiltrate much of the policy design process in most countries in recent decades (Pollitt, 2001; Knill, 2001; Héritier, Knill and Mingers, 1996). Compliance with government intentions has been increasingly approached in terms of market-based factors: profit margins and the economic viability of industry, employment patterns and international competitiveness. This new emphasis on market-based policy tools is the essence of what has sometimes been referred to as "the new governance" (Rhodes, 1996; Salamon, 2001) and underlines the linkages that exist in governance modes between

patterns of policy instrument choices and general governance preferences. Governance modes, in Considine's terms, have shifted in many countries and sectors from legal and corporatist styles to market and, in the European case, to network models (de Bruijn and Porter, 2004; Kickert and Koppenjan, 1997), in either case affecting the range and types of program objectives and policy tools chosen to address specific problems.

While policy designers can promote particular sets of abstract goals and preferences through their own activities in managing policy processes or their participation in them—as shall be discussed below—overall government aims and general instrument preferences most often can be taken as 'given,' or a fixed constraint, and designers typically must work within their ambit in matching the remaining policy objectives, tools, targets and tools calibrations to established overall meta-policy aims and instrument preferences (Kooiman, 2008).

Level 2: Policy Regime Logic and Capacity Issues— Determining Policy Objectives and Policy Mechanisms

The contemporary preference in most developed liberal-democratic countries such as the U.S., Canada, Australia, New Zealand and most countries in the European Union is for a form of market governance, the goal of which is the efficient delivery of consumer and capital goods and services through the use of market mechanisms wherever possible (Salamon, 2001). Other countries and types of states in Africa, the Middle East, Asia, Eastern Europe and South America include the additional aims of rapid economic expansion and social development, or 'modernization.' This is typically accomplished through the use of corporatist modes of governance in which state agencies and major non-state social actors engage in planning major investment decisions.

As described above, these governance modes set the outside boundaries or context for the second level of policy objectives and policy tools. Both preferred governance modes—market and corporatist—involve preferences for particular types of general policy tools, such as preferences for markets or hierarchies in goods and service delivery (Tenbensel, 2005; Thompson, 2003; Thorelli, 1986; Williamson, 1975, 1996). Policy objectives, of course, vary greatly according to the specific nature of the problems that specific policies are expected to address. However, in general, governments pursuing any of the types of governance modes set out above tend to develop *policy regime logics* that combine preferences for certain types of tools with a more or less generic set of overall policy objectives.

In the modern liberal-democratic state operating under a market governance mode, for example, policy objectives are typically framed in a discourse that expects state power to be used only, or mainly, to correct or offset market and collective action, or 'governance,' failures (Pigou, 1932; Bator, 1958). These refer to overcoming situations in which optimal outcomes will not emerge 'spontaneously' through unaided reliance on non-governmental actors and market mechanisms and which also require a guiding hand ('steering') on the part of governments (Dollery and Wallis, 1999; Kleiman and Teles, 2006). The objectives pursued by government are often defined as (1) to correct a real or perceived *market failure* in which private economic actors fail to autonomously deliver optimal social welfare outcomes (Stokey and Zeckhauser, 1978) or (2) to correct a *governance failure* in which public or private actors fail to deliver an optimal policy formulation or implementation process and outcome from a collective or state-wide perspective (Wolf Jr., 1979, 1987, 1988; Weimer and Vining, 2004).

Examples of the most well-known market failures and the kinds of tools that can be employed to correct them are shown in Figure 2.3.

A very similar set of objectives and corrective policy tools exists for *governance failures*. Like the idea of correcting market failures, correcting governance failures provides the objective of

Market Failure	*Example of Possible Corrective Policy Mechanism*
Imperfect information and information asymmetries	Voluntary or mandatory disclosure, e.g. nutritional labeling, securities disclosure
Public goods	State provision via organizations funded by taxes, e.g. park service, armies, policing, etc.
Externalities	State regulations 'internalizing' costs, e.g. mandating proper waste disposal, installing scrubbers, etc.
Natural monopoly	State ownership or heavy regulation of terms and conditions of service, e.g. telephone companies and utilities commissions
Destructive competition	Health and safety/consumer regulation—workers compensation boards, mandatory health and safety inspections
Tragedy of the commons	State ownership or regulation, e.g. oil and gas conservation boards, state companies, environmental regulation

Figure 2.3 Examples of Typical Market Failures and Corrective Tools

Source: Howlett (2009).

Governance Failure	*Example of Possible Corrective Policy Mechanism*
Collective action problems	Provision of benefits to participation, e.g. tax benefits for charitable donations, political party membership, etc.
Free-ridership	Mandatory participation laws, fines altering cost-benefit calculations of individuals
Regulatory information and data limitations	Development of state, market and non-profit alternative sources of data
Normative nature of risk assessment	Inclusion of multiple actors in establishing risk assessments
Uneven economic power of regulated groups	Representation of all stakeholders/targets in government decision-making; extension of funding to interest groups
Barriers to public participation	Provision of state funding to participatory forums
Lack of effective enforcement	Provision of greater personnel and financial resources
Legitimation problems	Use of procedural instruments such as advisory committees, public participation and stakeholder consultations

Figure 2.4 Governance Failures and Corrective Tools

Source: Howlett (2009).

many government policies, which can be addressed using a variety of policy tools (Olson, 1965; Le Grand, 1991). Several of the most notable such failures and examples of potential corrective policy mechanisms are set out in Figure 2.4.

These two concepts yield some insights into how liberal-democratic governments think about policymaking objectives in the context of concrete policy issues and suggest a clear rationale and overall logic for policy design in specific situations. This involves: (1) identifying a market or governance failure and the types of mechanisms that might correct it, (2) choosing the 'best' or most efficient mechanism from among those that could theoretically address the issue, and (3) implementing that mechanism in a standard way (Wolf, 1987; Le Grand, 1991; Zeckhauser, 1981; Mandell, 2008). It does not assume or require that decision-makers be welfare economists

and understand the logic of the analysis, only that administrators and some policy subsystem members approach problems in this way (Markoff and Montecinos, 1993).

Choosing the 'best' instrument in a particular situation is, of course, not an unproblematic proposition. There is not a 1:1 correspondence between failure and corrective tools, and typically, many instruments could conceivably address a problem. However, the question of policy tool choice is circumscribed not only by the embeddedness of the decision within a governance mode but also, as was the case with implementation preferences and policy aims, by tool preferences governments develop over the course of their policymaking and implementation experience.

Over time, the range of policy tools used in a particular sector or issue area can become quite complex. Policy instrument mixes can become quite dense—either by design or by accident of history (Webb, 2005; Howlett and Rayner, 2007). However, although seemingly faced with a large choice of possible instruments in creating their strategies, governments often repeatedly choose from a much more limited set of options. That is, there is a distinct tendency for governments to develop an implementation style in various sectors and to stick with this style for quite some time (Kagan and Axelrad, 1997; Kagan, 1997; Howlett, 1991, 2000, 2002). This is linked intimately to the nature of the overall governance mode and implementation preferences states have; the kind of market and governance failures they face and their familiarity with specific kinds of instruments in dealing with these or similar issues; and the nature of the resource endowments they have at their disposal.

This last point is significant because the various instruments and mechanisms governments use to design and give effect to public policies attempting to address market and governance failures can be classified according to which basic governing resource they principally rely upon for their effectiveness (Hood, 1986). Government preferences for the use of particular types of resources are thus a factor affecting which general type of tool is chosen to attain a given policy objective.

The resources governments have at their disposal in developing the means to attain policy objectives are fourfold. These include the age-old use of coercive authority to more or less force society's members to abide by government intentions; the equally ancient use of government treasury or financial resources to influence conduct; the use of government staff and organization to do the same (something that has grown dramatically over the last century as governments have expanded and multiplied); and, finally, the use of government information to alter societal behavior, a resource with old roots like organization but, also like organization, one which has grown dramatically in recent years as governments have collected and collated larger and larger amounts of data on social interactions of all kinds (Hood, 1983, 1986; Anderson, 1977).

A government regulation requiring a license in order use a particular pesticide, for example, is a policy tool expected to give effect to a set of policy objectives (in this case, a problem with externalities from pollution and information asymmetries between producers and consumers of sophisticated chemical products) within a set of aims (such as environmental protection and species preservation) and preferred implementation preferences (such as market-based service delivery within a market mode of governance). Such a mechanism requires an organization to implement it; some funding to pay the personnel involved in that activity; information notices to regulatees that a license is required and that the requirement will be enforced; and some legal authority to create a license scheme and enforce it. Such an instrument thus involves the use of many types of governing resources, but the *primary* resource it relies upon is the legal authority to enforce compliance, without which all of the other resources would be ineffective and unnecessary.

Figure 2.5 sets out some examples of common procedural and substantive policy tools associated with each type of governing resource, classified according to the primary resource they rely upon for their effectiveness.

	Information	*Governing Resource Authority*	*Treasure*	*Organization*
Substance	Advice Training Reporting Education Advertising Surveys	Licenses User charges Regulation Self-regulation Vouchers Quotas	Subsidies Grants Loans Tax expenditures Program funding	Bureaucracies Public enterprises Quangos
Purpose				
Process	Information-suppression Information-release	Advisory group creation Interest group or party bans Denial of access	Interest-group Funding Campaign funding Denial of funding	Administrative re-organization Administrative delay and obfuscation

Figure 2.5 A Taxonomy of Substantive and Procedural Policy Instruments by Principal Governing Resource Employed

Source: Adapted from Hood, C. *The Tools of Government.* Chatham: Chatham House Publishers, 1986; and Howlett, M. "'Managing the "Hollow State': Procedural Policy Instruments and Modern Governance." *Canadian Public Administration* 43, no. 4 (2000): 412–31.

An implementation style is usually composed of a combination, or mix, of substantive and procedural instruments—two at a minimum (Howlett et al., 2006). A very well-known implementation style found in many U.S. policy sectors, dubbed 'adversarial legalism' by Robert Kagan, is composed of a preferred substantive instrument—regulation—and a characteristic procedural one—judicial review—based on widespread, easily accessible legal procedures allowing regulatees to challenge and occasionally overturn a law or directive (see Kagan, 1991, 1996, 1997; Kagan and Axelrad, 1997). This choice of policy tools is utilized in many sectors in the U.S., and in many other countries with similar governance modes and objectives, not least because it is congruent with these meta-policy preferences and relies upon readily available governing resources (authority) with whose use legally trained policy and decision-makers are very familiar.

Taken together, the policy objectives and policy tools found in a particular sector comprise a meso-level *policy regime logic* within which further micro-level policy design decisions are taken (Lowi, 1972; Orren and Skowronek, 1998). This second meso level of policy design is thus significantly influenced by pre-existing governance modes, but it also acts as a significant influence on ultimate policy instrument choices and is an integral component of effective policy designs.

Level 3: Technical Instrument Design— Determining Policy Targets and Calibrations

Many authors have argued (de Bruijn and Hufen, 1998) that there is more to instrument choice than the purely technical issues surrounding the 'objective' characteristics of a particular proposed policy tool. However, this concern for the significance of the 'politics of policy instrument choice' over consideration of technical criteria is somewhat misplaced: it should not be construed so as to imply that technical concerns are irrelevant, but merely that they are embedded within the governance mode and policy regime contexts of any given policy tool choice situation.

As suggested earlier, government choice in the realm of micro-level policy design activities are constrained by both pre-existing meso-level policy regime logics and meta or macro-level governance modes. Both considerations of what is feasible and desirable at the micro level depend on what tools are available and considered appropriate to use and on subjects tied to governance modes, policy logics and micro-level policy goals—that is, to the specific targets policies expected to be accomplished or achieved (Huitt, 1968; Majone, 1975; Webber, 1986). At the core of policy design activities at this level, within the range set by abstract policy aims and implementation preferences and those related to governing capacities and assessments of market and governance failures, is the matching of specific program means to specific policy targets.

Policy targets are sometimes set in legislation, as is the case with monetary and fiscal policy goals (McMillin and Fackler, 1984) but often are less formally prescribed. However they are established, targets are requisite for effective policy implementation (Kiviniemi, 1986). They establish the final level of operationalized goals that policymakers set out to achieve in specific policy and problem areas. While the range of possible policy targets is theoretically enormous, the fact that the targets should be congruent with macro-level policy aims and meso-level program objectives limits this range substantially. This final level of policy specification is thus highly constrained, lending some order and continuity to what otherwise might be a largely random selection of micro-level policy goals. Regularized patterns of interactions between major policy players (Grin and De Graaf, 1996; Spicker, 2005) heavily influence the development of specific program goals and targets. So do their perceptions of what is feasible to accomplish given existing and future resources, and the ideas held by epistemic communities and other relevant policy actors about problem causation and target group behavior (Donovan, 2001). As a result, goals will vary considerably from context to context as a result. Nevertheless, once goals have been set, they become entrenched and difficult to alter, forming a final core context for policy tool choices.

That is, the final development and calibration of specific substantive and procedural policy tools are tied to the assessment in specific circumstances of the nature of governing resources available and the challenges to be faced, within the prior identification of the appropriate type of instrument to use given an existing regime logic and governance mode (Linder and Peters, 1984, 1988; Bressers and O'Toole 1998, 2005). Targets may include considerations of efficiency, effectiveness and equity, or merely symbolic activity among others (Bemelmans-Vidic, 1998; Edelman, 1964, 1988). As Linder and Peters (1989) suggest, developing policy targets involves assessing different levels of administrative intensiveness, degrees of precision of targeting, political risk and legitimacy and state activity (Figure 2.6).

Once that assessment is complete, however, the technical aspects of particular instruments that can be specifically calibrated to meet the desired policy end must be adjusted. These include factors such as the degree of coerciveness of the tools employed, their directness of this use and their level of automaticity and visibility (Figure 2.7). That is, the attainment of these goals is expected to be achieved through the fine-tuning or 'calibration' of the policy tools previously highlighted in an existing policy regime logic into a set of *operational plans* for policy problem resolution and goal attainment. At this final stage of calibrating tools to match articulated policy target goals, factors such as the technical characteristics of the instruments and their match with the context and dynamics of the problem(s) need to be addressed, as do such political and administrative factors as the past experiences of governments and target groups in using these tools to deal with the same or a similar problem.

Taken individually, these characteristics of specific possible instrument calibrations could generate a large number of possible micro-level tool design choices. Taken together within the context of the constraints established by governance modes, policy regime logics and micro-level

(1) **Administrative intensiveness**, including administrative cost, operational simplicity and a policy's ability to adapt to changing circumstances;
(2) **Targeting**, including precision and selectivity among groups and policy actors and effect on points or stages in production and policy processes;
(3) **Political risk**, including the nature of support and opposition for an instrument's use, public visibility and chances of failure; and
(4) **Constraints on state activity**, including difficulties with coerciveness and ideological principles limiting government activity.

Figure 2.6 Micro-Level Policy Target Criteria

Source: Linder, S. H., and B. G. Peters. "Instruments of Government: Perceptions and Contexts." *Journal of Public Policy* 9, no. 1 (1989): 35–58.

(1) **Degree of coerciveness** required for effectiveness;
(2) **Directness** in delivery vs use of intermediaries;
(3) **Automaticity** or use of existing implementation structures vs creation of new ones; and
(4) **Visibility** in budgeting and policy review activities.

Figure 2.7 Micro-Level Policy Tool Calibration Criteria

Source: Developed from Salamon, L. M. "The New Governance and the Tools of Public Action." In *The Tools of Government: A Guide to the New Governance*, edited by L. M. Salamon, 1–47. New York: Oxford University Press, 2002.

policy goals, however, they typically serve to reduce the number of potential choices to a very small number that can then be subjected to standard evaluative techniques such as efficiency or cost-benefit analysis (Bemelmans-Videc, 1998).

Conclusion: Analyzing Policy Instrument Choices as Nested, Highly Constrained Decisional Processes

In spite of its centrality and importance to public policymaking, policy design still remains in many respects a 'missing link' in policy studies (Hargrove, 1975). The design process is complex, often internally orchestrated between bureaucrats and target groups and usually much less accessible to public scrutiny than many other kinds of policy deliberations (Donovan, 2001; Kiviniemi, 1986). In addition, design decisions are linked both to the characteristics of policy instrument choices (Linder and Peters, 1990a, 1990b), another subject which has received very uneven treatment in the policy studies literature, and to the nature of general governance contexts and long-term policy preferences, a third subject which has not been addressed as directly as needed by existing policy studies (Linder and Peters, 1990c, 1991, 1992).

Given this complexity, it is not surprising that many noble efforts by governments and citizens to create a better and safer world have foundered on poor policy design. This has led to a greater

appreciation of the difficulties encountered in designing public policies and to the attempt to correct the gaps in our understanding of the nature of policy instruments and their governance contexts (Woodside, 1986; Lester and Goggin, 1998; Eliadis et al., 2005).

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3

DESIGNING COMPLEX POLICY MIXES

Elements, Processes and Characteristics[1]

Karoline S. Rogge

Introduction

Over the past two decades policy design has increasingly investigated policy mixes rather than single instruments (Howlett, 2014a; Howlett et al., 2015; Howlett and Lejano, 2013). Such policy mix thinking has received growing interest not only in the policy design literature but also in other fields, such as in the emerging field of sustainability transitions (Markard et al., 2012). For example, in the context of the move towards decarbonized energy systems, policy mixes have been pointed out as key for governing energy transitions (Kivimaa and Kern, 2016; Rogge et al., 2017; Rogge and Reichardt, 2016). In addition, it has been increasingly acknowledged that multiple market and system failures can only be addressed through multi-faceted policy interventions (Braathen, 2007; Lehmann, 2012; Twomey, 2012; Weber and Rohracher, 2012).

Building on the seminal work of Gunningham and Grabosky (1998), researchers and policymakers alike started to pay greater attention to investigating the positive and negative interactions of multiple instruments and their relevance for the effectiveness and efficiency of instrument combinations (del Río, 2007; IEA, 2011a, 2011b; OECD, 2007; Sorrell and Sijm, 2003). However, this focus on instrument interactions and the often ambiguous terminology applied in different policy mix studies have two major consequences for policy design. First, the narrow scope may cause researchers to neglect important policy mix elements or processes in their analyses, potentially leading to insufficient policy design. Second, the lack of a uniform terminology could lead to apparently ambiguous findings and may render policy mix analyses difficult to assess, compare and synthesize.

In this chapter, we therefore follow Flanagan et al.'s (2011) call for a reconceptualization of the policy mix, which we argue is a prerequisite of future empirical analysis. Here, we take a first step in identifying and defining the key elements, processes, characteristics and dimensions of such an extended policy mix concept. For this, we review and synthesize the literature on policy science, innovation studies, environmental economics and strategic management. In doing so, we aim at deriving a policy mix concept that assists in a more systematic understanding of the complexity of real-world policy mixes and serves as an integrating framework for policy mix design and analysis.

The remainder of the chapter is structured as follows. In the first section, we review the literature on policy mixes and their characteristics and derive requirements for an extended policy mix concept. Based on this, in the following section, "Building Blocks of the Policy Mix Concept," we present the three building blocks of the proposed policy mix concept—elements ("Building

Block 1: Elements"), policy processes ("Building Block 2: Policy Processes") and characteristics ("Building Block 3: Characteristics")—and introduce relevant dimensions for delineating policy mixes ("Dimensions"). Finally, in the Conclusion we discuss how the extended policy mix concept may be used as an analytical framework—taking the example of investigating the link between policy mixes and socio-technical change—and conclude with outlining some avenues for future research informing policy mix design.

Literature Review

Policy Mix

A growing number of studies in various scientific fields use the term *policy mix*, including Howlett and Rayner (2007) in the field of policy design, but also Lehmann (2012) in environmental economics and Nauwelaers et al. (2009) in innovation studies. In its most basic form, studies implicitly or explicitly define a policy mix as the combination of several policy instruments (Nauwelaers et al., 2009) or the combination of policy goals and means (Kern and Howlett, 2009). Three general features emerge from the policy mix definitions used in various scientific fields (Table 3.1): First, they typically include the ultimate objective(s) of

Table 3.1 Definitions of the Term Policy Mix in the Literature

Scientific field	*Source*	*Definition*
Environmental regulation	Gunningham and Grabowsky (1998, p. 5)	Limitations in environmental policy "can only be overcome by invoking a broader vision of regulation and by the pursuit of broader policy mixes, utilizing combinations of instruments and actors, and taking advantage of various synergies and complementarities between them."
Policy design	Kern and Howlett (2009, p. 395)	"Policy mixes are complex arrangements of multiple goals and means which, in many cases, have developed incrementally over many years."
Innovation studies	Nauwelaers et al. (2009, p. 3)	"A policy mix is defined as: The combination of policy instruments, which interact to influence the quantity and quality of R&D investments in public and private sectors."
Climate economics	Lehmann (2012, p. 1)	"Polluting sources may be affected directly or indirectly by several policies addressing the same pollution problem. This is referred to as a policy mix."
Ecological Economics	Ring and Schröter-Schlaack (2011, p. 15)	"A policy mix is a combination of policy instruments which has evolved to influence the quantity and quality of biodiversity conservation and ecosystem service provision in public and private sectors."
Innovation policy studies	Flanagan et al. (2011, p. 704)	If the policy mix concept "has any utility it must be in forcing our attention to the trade-offs between policies as they impact upon the extent to which the ultimate intended goals or outcomes of innovation policy are realised, in a particular space and at a particular time."
Transition studies	Rogge and Reichardt (2016, p. 1622)	"we define the policy mix as a combination of the three building blocks elements, processes and characteristics, which can be specified using different dimensions."

Source: Extension of Rogge and Reichardt (2016).

the policy mix, either in an abstract form (Kern and Howlett, 2009) or more typically as a specific objective of a certain policy field, such as innovation (Nauwelaers et al., 2009) or biodiversity (Ring and Schröter-Schlaack, 2011). Second, interaction is a central feature of the existing policy mix definitions (del Río, 2007; Nauwelaers et al., 2009). Third, some of the definitions point to the dynamic nature of the policy mix, referring to it as having 'evolved' (Ring and Schröter-Schlaack, 2011) and "developed incrementally over many years" (Kern and Howlett, 2009, p. 395).

Yet, in many situations a policy mix concept is needed that goes beyond this narrow scope—interacting instruments aimed at achieving objectives in a dynamic setting—at least in two respects. First, it needs to more explicitly incorporate *policy processes*, "by which policies emerge, interact and have effects" (Flanagan et al., 2011, p. 702) (i.e. policy design as verb), because such processes and related politics help explain the evolution of policy mixes but also the resulting effects (Foxon and Pearson, 2007, 2008). Second, it ought to include a *strategic component*, which tends to be neglected despite early works of Jänicke on the role of strategic approaches in environmental policy (Jänicke, 1998, 2009). For example, in the context of sustainability transitions the necessity of long time horizons has been stressed (Markard et al., 2012; Nair and Howlett, 2016), and long-term climate targets have been identified as playing a key role for companies' innovation strategies (Rogge et al., 2011; Schmidt et al., 2012).

Characteristics of Policy Mixes

To describe the nature and performance of policy mixes, it is useful to differentiate between policy mix characteristics (Howlett and Rayner, 2007) and assessment criteria (OECD, 2003a; Sorrell et al., 2003). Terms belonging to the latter group represent well-established ex-ante and ex-post assessment criteria typically applied in evaluations of single policy instruments, such as effectiveness, efficiency, equity or feasibility (del Río, 2014; IRENA, 2012). In contrast, the former group comprises terms specifically used for characterizing the policy mix, such as consistency, coherence, credibility or comprehensiveness (Foxon and Pearson, 2008; Howlett and Rayner, 2007; Kern and Howlett, 2009; Majone, 1997; Rogge and Reichardt, 2016). These design characteristics are not ends in themselves but may impact the performance of a policy mix in terms of the standard assessment criteria.

However, significant differences exist in what is actually meant by these characteristics in different bodies of literatures, rendering interdisciplinary dialogue difficult. We will illustrate this ambiguity for the frequently used but particularly heterogeneously defined terms *consistency* and *coherence* (Den Hertog and Stroß, 2011; Picciotto, 2005), for which we identify three important points to be taken into account when establishing a more uniform terminology that lends itself to interdisciplinary research on policy mix design.

First, consistency and coherence are either seen as *identical* or *different characteristics*. The former suggests coherence is synonymous with consistency (Carbone, 2008; Hoebink, 2004; Matthews, 2011). As a result, coherence is often simply defined using the term consistency (Hydén, 1999), but there is no uniform definition.[2] In contrast, the latter distinguishes consistency and coherence as different characteristics (Howlett and Rayner, 2007; Mickwitz et al., 2009a; OECD, 2001), but again there is no agreement on the exact nature of this difference. Policy design scholars speak of consistency of instruments and coherence of goals (Howlett and Rayner, 2007) and have also introduced congruence among instruments and goals as a third category (Kern and Howlett, 2009) (see Chapter 26 in this handbook). Other policy studies assert that coherence is more encompassing than consistency (Jones, 2002; OECD, 2003a). That is, in its most basic form, consistency is seen as the absence of contradictions (Den Hertog and Stroß, 2011; Gauttier, 2004),

while coherence calls for an achievement of synergy or positive connections (Missiroli, 2001; Tietje, 1997).

Second, the literature differentiates between a *state* and *process perspective* of consistency and coherence, i.e. between what is being achieved and how it is achieved (Carbone, 2008), but again, this is not treated uniformly. A first set of studies addresses the state of affairs at a certain point in time only (Duraiappah and Bhardwaj, 2007; Fukasaku and Hirata, 1995; Hoebink, 2004). A second set instead captures the process perspective (Jones, 2002; Lockhart, 2005; OECD, 2003a), often concentrating on the organizational or institutional setup to attain consistency/coherence. A third set of studies mentions—either implicitly or explicitly—both state and process perspectives, but uses the same term—typically coherence—for both (Den Hertog and Stroß, 2011; Forster and Stokke, 1999; McLean Hilker, 2004).

Third, some studies focus on *tools* for enhancing consistency and coherence (Ashoff, 2005; OECD, 1996, 2003a), a discussion that is closely linked to the literature on policy coordination[3] and integration[4] (Howlett et al., 2017; Magro et al., 2014; Mickwitz et al., 2009a; van Bommel and Kuindersma, 2008). However, as before, there is no common understanding of the terms consistency and coherence and how they relate to other concepts, such as coordination.

One reason for this lack of a uniform terminology may be the often largely separated contributions addressing distinct policy fields, such as development policy (EU, 2005; Weston and Pierre-Antoine, 2003), climate and energy policy (Matthes, 2010; Mickwitz et al., 2009b) and eco-innovation policy (Reid and Miedzinski, 2008; Ruud and Larsen, 2004). We argue that such diversity in meaning and the resulting difficulties in integrating findings across studies is hindering advances in policy design research on policy mixes. Therefore, future research would benefit from applying uniform definitions that fulfill the following two requirements: First, these definitions need to clearly specify whether they refer to the output (policy design as noun) or process perspective of the policy mix (policy design as verb), which might best be accomplished by separate terms for each of these perspectives. Second, at a minimum they should allow for the differentiation of a weak and strong form to capture the distinction between the absence of contradictions and actual synergies within a policy mix.

Building Blocks of the Policy Mix Concept

As derived in the literature review, an extended policy mix concept for dealing with the complexity of real world policy mixes needs to address three basic requirements: first, the inclusion of a *strategic component*; second, the incorporation of associated *policy processes*; and third, the enhanced consideration of *characteristics* of policy mixes. In capturing this complexity of actual policy mixes, it should also pay attention to their dynamic nature.

Based on these requirements, Rogge and Reichardt (2016) have defined the policy mix as a combination of the three building blocks elements, processes and characteristics, which can be specified using different dimensions. *Elements* comprise the (i) policy strategy with its objectives and principal plans for achieving them and (ii) the instrument mix with its interacting policy instruments—and thus the elements of a policy mix capture policy design as noun. The content of these elements is a result of *policy processes*—and thus these processes of policymaking and implementation reflect policy design as verb. Both elements and processes can be described by their *characteristics*, including—but not limited to—the consistency of elements, the coherence of processes, or the credibility and comprehensiveness of a policy mix. Finally, the policy mix can be delineated by several dimensions, including—but again not limited to—policy field, governance level, geography and time (see Figure 3.1).

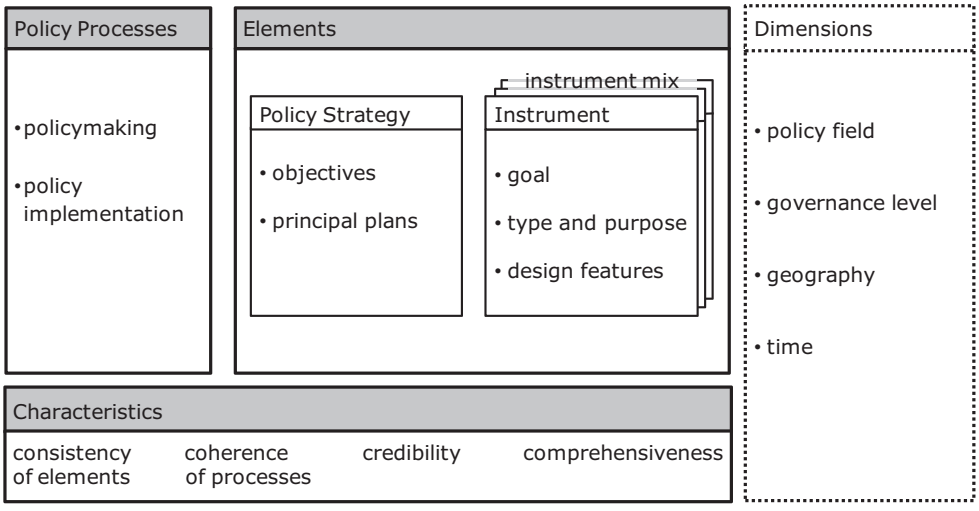

Figure 3.1 Building Blocks of an Extended Policy Mix Concept

Source: Rogge and Reichardt (2016)

Building Block 1: Elements

Policy Strategy

The importance of long-term strategic orientation and strategic policy frameworks has been increasingly underscored in the literature, for example regarding sustainability transitions (Foxon and Pearson, 2008; Quitzow, 2015; Weber and Rohracher, 2012) and policy-triggered environmental technological change (Rogge et al., 2011; Schmidt et al., 2012). Policy strategy has therefore been incorporated as one of the elements in the policy mix concept. Building on the strategic management literature in general (Miles and Snow, 1978; Mintzberg et al., 1998) and on Andrews (1987) and Porter (1980) in particular, the policy strategy is defined as a combination of policy objectives and the principal plans for achieving them. That is, the definition puts an emphasis on the output—the ends and means—of the strategy process, while the adaptive process of formulating, implementing and revising objectives and plans is captured by the processes building block (see "Building Block 2: Policy Processes").

The first component of the policy strategy definition concerns *policy objectives*, such as mitigating climate change and greening the economy. These objectives tend to be substantiated by long-term *targets* with quantified ambition levels, such as greenhouse gas reductions by 2050, and may be based on visions of the future (del Río, 2010; Kemp and Rotmans, 2005).[5] Besides content-oriented objectives, a policy strategy can also contain process and learning objectives (Kemp, 2007; Nair and Howlett, 2017; Rotmans et al., 2001), for example in terms of the build-up or enhancement of the strategic capacity of governments (OECD, 2015; Quitzow, 2015) or reflexivity of governance systems (Lindner et al., 2016).

The second component of the strategy definition addresses the *principal plans* for achieving these objectives. Such plans outline the general path that governments propose to take for the attainment of their objectives and include framework conventions, guidelines, strategic action plans and roadmaps that typically surpass electoral cycles, such as the EU Strategic Energy Technology (SET) Plan or the German Energy Concept.

The long-term perspective inherent in the policy strategy (Hillman and Hitt, 1999) can play a fundamental role in giving direction to actions and decisions (Grant, 2005) and providing actors with needed guidance in their search for solutions (Hekkert et al., 2007). For example, research has shown the vital role of ambitious and stable long-term climate targets in steering R&D activities of companies in the power sector (Rogge et al., 2011; Schmidt et al., 2012). However, the same research has also pointed out that this strategic element of the policy mix on its own is not sufficient to change companies' innovation strategies but needs to be operationalized through concrete policy instruments.

Instruments

As the second element in the policy mix, policy instruments constitute the concrete tools to achieve overarching objectives. More precisely, they can be seen as tools (Salamon, 2002) or techniques of governance (Howlett, 2005) that address policy problems (Pal, 2006). They are introduced by a governing body (Sorrell et al., 2003) in order to achieve policy objectives (Howlett and Rayner, 2007), thereby translating plans of action (de Heide, 2011). A number of alternative terms are used, such as implementing measures (EU, 2013), programs (Komor and Bazilian, 2005), policies (IRENA, 2012) or policies and measures (UNFCCC, 2011).

Policy instruments are typically associated with specific *goals* covering the intended effect of instruments that contribute to achieving overarching policy objectives. In addition, two key calibrations of policy instruments are particularly relevant for policy design, namely instrument *type* and instrument *design feature*.

INSTRUMENT TYPE

In the policy design literature, much attention has been devoted to developing taxonomies of instruments (see Chapter 5, and Part 4 of this handbook). Here, we want to illustrate the importance of considering different instrument types when designing policy mixes for the example of environmental and innovation policy (Hufnagl, 2010; Nauwelaers et al., 2009; Sterner and Coria, 2012). For this, we propose a 3×3 matrix typology (see Table 3.2) that combines three instrument types (economic instruments, regulation and information) with three instrument purposes (technology push, demand pull and systemic concerns). By including information and systemic instruments, i.e. those "instruments that support functions operating at system level" (Smits and Kuhlmann, 2004, p. 25),[6] the typology captures both substantive and procedural instruments (Howlett, 2000). Of course, such a matrix is an oversimplification of reality and as such is not free of overlaps, which is recognized by qualifying both instrument purpose and type with the word 'primary.'

INSTRUMENT DESIGN FEATURES

A policy instrument's design features may be more influential for achieving policy objectives, such as innovation, than the instrument type (Kemp and Pontoglio, 2011; Vollebergh, 2007). Therefore, an increasing number of studies explicitly consider them when analyzing policy instruments and their effects, such as regarding environmental innovation (Ashford et al., 1985; Blazejczak et al., 1999; Norberg-Bohm, 1999). In addition, design features may also impact an instrument's effectiveness and efficiency and may be a prerequisite for interaction analyses (del Río, 2009).

Table 3.2 Exemplary Type-Purpose Instrument Typology (With Instrument Examples)

	PRIMARY PURPOSE		
PRIMARY TYPE	*Technology Push*	*Demand Pull*	*Systemic*
Economic Instruments	RD&D* grants and loans, tax incentives, state equity assistance	Subsidies, feed-in tariffs, trading systems, taxes, levies, deposit-refund systems, public procurement, export credit guarantees	Tax and subsidy reforms, infrastructure provision, cooperative RD&D grants
Regulation	Patent law, intellectual property rights	Technology/performance standards, prohibition of products/practices, application constraints	Market design, grid access guarantee, priority feed-in, environmental liability law
Information	Professional training and qualification, entrepreneurship training, scientific workshops	Training on new technologies, rating and labeling programs, public information campaigns	Education system, thematic meetings, public debates, cooperative RD&D programs, clusters

* RD&D = Research, development and demonstration

Source: Rogge and Reichardt (2016).

As such, design features are key for policy designers and can be differentiated by abstract and descriptive features. *Descriptive design features*, such as an instrument's legal form,[7] target actors and duration, summarize the content of a policy instrument (del Río, 2012), which can serve as a first step in identifying how a policy instrument performs regarding abstract design features. A number of *abstract design features* have been proposed in the literature (Hašcic et al., 2009; Kemp and Pontoglio, 2011),[8] but there is no universally accepted list. We argue that at least the following six may be important to consider: stringency, level of support, predictability, flexibility, differentiation and depth.

First, *stringency* addresses the ambition level of an instrument and is typically associated with regulatory and economic instruments, such as emissions standards or emissions trading. It can refer to both an instrument's goal and its design, with the individually perceived stringency ultimately determined by the characteristics of the instrument's target actor, such as its technology portfolio. For example, findings point to a positive impact of stringency on innovation, despite differences in definitions and operationalizations of stringency across studies (Frondel et al., 2007; Ghisetti and Pontoni, 2015; Rogge et al., 2011).

Second, *level of support* captures the magnitude of positive incentives provided by a policy instrument, which may be particularly relevant for instruments providing financial incentives. A prime example is the level of feed-in tariffs, which aim at increasing the return on investments in renewable power generation technologies (Steinhilber et al., 2011).

Third, *predictability*, having gained attention particularly in relation to the EU ETS and a post-Kyoto international climate agreement (Engau and Hoffmann, 2009; Hoffmann et al., 2008), "captures the degree of certainty associated with a policy instrument and its future development. This concerns the instrument's overall direction, detailed rules, and timing" (Rogge et al., 2011, p. 515). As such, it ultimately addresses the effect of a policy instrument on investor uncertainty (Hašcic et al., 2009), which may be particularly important for long-lived capital-intensive

investments and RD&D decisions. For example, the German EEG increases its predictability by granting support to investors for 20 years.

Fourth, *flexibility* captures the extent to which innovators are allowed to freely choose their preferred way of achieving compliance with an instrument (Kivimaa and Mickwitz, 2006; Norberg-Bohm, 1999). Johnstone and Hašcic (2009, p. 1) find that for "a given level of policy stringency, countries with more flexible environmental policies are more likely to generate innovations which are diffused widely and are more likely to benefit from innovations generated elsewhere."

A fifth abstract design feature concerns the *differentiation* specified in policy instruments (Kemp and Pontoglio, 2011), e.g. with regard to industrial sector, size of the plant, technology or geographical location. Sixth, the *depth* of the policy instrument addresses the range of its incentives, such as whether its incentives extend all the way to potential solutions with zero emissions (Hašcic et al., 2009).

The interwoven nature of design features requires them to be mutually balanced (Kemp, 2007). For example, empirical studies recommend a gradual tightening of the stringency in a predictable manner, while at the same time providing enough flexibility to allow for the exploration of new developments (Kivimaa, 2007).

Instrument Mix

Moving from single instruments to their combination brings us to the instrument mix, which represents only one aspect of the overarching policy mix. Regarding the instruments in this mix, it may be useful for policy designers to distinguish between core (or cornerstone) instruments and complementary (or supplementary) instruments of an instrument mix (IEA, 2011b; Matthes, 2010; Schmidt et al., 2012). In addition, policy designers may be faced with different hierarchies of instruments that will determine the design space for subordinate instruments.

At the heart of the concept of instrument mixes are *interactions* between the instruments, which signify "that the influence of one policy instrument is modified by the co-existence of other [instruments]" (Nauwelaers et al., 2009, p. 4). This influence originates from the direct or indirect effect that the operation or outcomes of instruments have on each other (Oikonomou and Jepma, 2008; Sorrell et al., 2003). Clearly, these interdependencies of instruments largely influence the combined effect of the instrument mix and thus the achievement of policy objectives (Flanagan et al., 2011).

However, as pointed out by Gunningham and Grabosky (1998), without considering the particular context in which interactions occur, only tentative conclusions on instrument interactions can be reached, thus calling for empirical analyses. Such analyses ought to understand the mechanisms and consequences of policy interactions, which requires considering a number of aspects, including the scope of the interacting instruments, the nature of their goals, their timing and operation and implementation processes (Sorrell et al., 2003). This suggests that interaction outcomes are not only determined by the instrument mix but also shaped by the overarching policy mix.

Instrument interactions have been predominantly dealt with in the environmental domain, particularly on climate and energy issues (Spyridaki and Flamos, 2014). More recently, innovation studies have also started to highlight interactions (Cantner et al., 2016; Flanagan et al., 2011; Guerzoni and Raiteri, 2015). Overall, these studies acknowledge the need to avoid negative interactions and to strive for positive or complementary interaction outcomes.

Building Block 2: Policy Processes

Rather than looking only at the content of the policy strategy and instrument mix with its interacting instruments (design as noun), we now turn our attention to the policymaking process (design as verb), or *policy process* for short (Dunn, 2004; Dye, 2008). It is these processes that

determine the elements of the policy mix and thus how both the strategy and corresponding instruments change over time. In addition, policy processes may also influence policy outcomes and impacts more directly, as shown for example in the case of offshore wind (Reichardt et al., 2017). Given their importance (Howlett and Rayner, 2007; Kay, 2006; Majone, 1976), these processes constitute another building block of the extended policy mix concept.

Building on Howlett et al. (2009), Sabatier and Weible (2014) and Capano et al. (2014) we refer to the policy process as a political problem-solving process among constrained social actors in the search for solutions to societal problems—with the government as primary agent taking conscious, deliberate, authoritative and often interrelated decisions. As such, these interactive and continuous reconciliation processes with various feedback loops involve power, agency and politics (see Chapter 14 in this handbook). For example, this political dimension has been pointed out in the context of sustainability transitions, with their complex and messy policy processes, a plethora of involved actors and their conflicting interests and ideas (Meadowcroft, 2009; Stirling, 2014). Finally, policy processes are shaped by socio-economic conditions, infrastructure and biophysical conditions, but also by culture and institutions (Sabatier and Weible, 2014), and can thus differ significantly across space and time. Studying such processes can draw on various theories of the policy process (Sabatier and Weible, 2014). However, as has been pointed out in the context of analyzing sustainability transitions, many studies applying policy process theories do not assume a policy mix perspective, but much could be gained from doing so (Kern and Rogge, 2017).

Policy processes cover all stages of the policy cycle, including problem identification, agenda setting, policy formulation, legitimization and adoption, implementation, evaluation or assessment, policy adaptation, succession and termination (Dunn, 2004; Dye, 2008; Howlett et al., 2009; Schubert and Bandelow, 2009). As such, the policymaking process can be seen "as a cycle of problem-solving attempts, which result in '*policy learning*' through the repeated analysis of problems and experimentation with solutions" (Howlett et al., 2009, p. 3). This ongoing and reactive nature of policy processes shapes both the setting and adjustment of the policy strategy and the (re)design of instruments in the mix (through layering, stretching, patching and packaging; see Chapter 9 in this handbook), both through processes of design and non-design (Howlett and Mukherjee, 2014) (see Chapter 20 in this handbook).

Regarding *policymaking*, we stress two aspects: First, policy adaptation and policy learning are crucial features of policymaking processes, particularly when dealing with dynamic, multi-faceted and uncertain policy challenges, such as sustainability transitions (Allen et al., 2011; Bennett and Howlett, 1992; Boekholt, 2010; Kemp et al., 2007; Loorbach, 2007; Nair and Howlett, 2017). To facilitate such interactive processes, the monitoring and evaluation of the impacts of policy mixes are of fundamental importance (Kemp, 2011). Also, participatory processes of envisioning, negotiating, learning and experimenting can strengthen policy learning (Frantzeskaki et al., 2012; Schot and Steinmueller, 2016). Second, policymaking is a highly political process characterized by resistance to change, particularly from actors with vested interests (Geels, 2014; Meadowcroft, 2009). In that sense, the adoption of a policy strategy with clear objectives but without the simultaneous adoption of a set of instruments—while inconsistent—can be understood as an attempt to set the agenda for upcoming changes in the instrument mix, therefore providing direction. However, given the political nature of policymaking processes, it may remain difficult to radically adjust the instrument mix even if new policy objectives are in place. This may be one reason why new instruments supporting new solutions, such as renewable energies, may be added to those supporting the existing ones, such as fossil fuels, instead of replacing (Kern and Howlett, 2009) or reforming them (see Chapter 17 in this handbook).

By *policy implementation*, we mean "the arrangements by authorities and other actors for putting policy instruments into action" (Nilsson et al., 2012; Figure 3.1), that is, for executing

and enforcing them (Sabatier and Mazmanian, 1981). Complex and insufficient implementation structures as well as political resistance at subordinate governance levels may lead to implementation difficulties, such that a policy instrument ultimately may not tap its full potential (Howlett et al., 2006; Howlett et al., 2017). Such difficulties may partly be overcome by an appropriate crafting of policy instruments (May, 2003; Mazmanian and Sabatier, 1981), including the provision of sufficient funding and staff for implementation.

Finally, at a more abstract level, we highlight the role of the style of policy processes. More precisely, we refer to the policymaking and implementation style, i.e. the "standard operating procedures for making and implementing policies" (Richardson, 1982, p. 2). The policy style captures, for example, the typical kind of goal setting or flexibility in instrument application (Blazejczak et al., 1999; Jänicke et al., 2000). As is put forward in Chapter 21, implementation styles vary across different types of policy design. Here we argue that policy styles may directly and indirectly influence the policy mix and its performance (Reichardt et al., 2017).

Building Block 3: Characteristics

Overarching *characteristics* describe the policy mix and may be important determinants for its performance regarding standard assessment criteria, such as its effectiveness. While some characteristics, such as consistency and coherence, have long been acknowledged in policy design studies (Howlett and Rayner, 2007; Kern and Howlett, 2009, see Chapter 26 in this handbook), others have been added more recently to the list of potential policy mix characteristics, such as policy credibility (Bosetti and Victor, 2011; Brunner et al., 2012; Nemet et al., 2017). In the following, we outline four policy mix characteristics—consistency, coherence, comprehensiveness and credibility—but acknowledge that this list is far from complete. For example, in the context of clean energy innovation, the balance of a mix (Costantini et al., 2017) and its stability (Rogge and Reichardt, 2013) have been discussed as further policy mix characteristics.

Consistency of Elements

We suggest that *consistency* captures how well the elements of the policy mix are aligned with each over, thereby contributing to the achievement of policy objectives. It may range from the absence of contradictions to the existence of synergies within and between the elements of the policy mix.

We highlight two key features of this consistency definition. First, it focuses on the *state of the elements* of the policy mix at any given point in time, i.e. its content. In this regard, the development of the alignment of the elements of the policy mix over time is captured by the term temporal consistency. Second, it may be most useful to understand consistency in relative terms, i.e. differentiating between the degree of consistency and its variation across dimensions, such as time, geography or governance level. A consistent policy mix at a minimum needs to be free of contradictions or conflicts (Forster and Stokke, 1999), as this may impair the achievement of objectives (Ashoff, 2005; Hoebink, 2004; McLean Hilker, 2004). If on top of such weak consistency complementarities, mutual support and synergies exist, we refer to this as strong consistency. However, in reality such consistency may not be possible to achieve, for example due to conflicting objectives (see below).

We distinguish between consistency of the policy strategy, consistency of the instrument mix and consistency of the instrument mix with the policy strategy. First, consistency of the *policy strategy* incorporates the alignment of policy objectives (Mickwitz et al., 2009a; OECD,

2003a), which suggests that these can be achieved simultaneously without any significant trade-offs. This is important because conflicting objectives are a major source of tension between the instruments in a policy mix (Flanagan et al., 2011). Examples are whether climate targets are consistent with energy security or competitiveness targets, or whether interim targets are consistent with long-term targets. In addition, it captures whether principal plans, i.e. framework conventions, guidelines, strategic action plans and roadmaps, are free of contradictions or mutually supportive. This first level of consistency also captures whether these plans are consistent with policy objectives.

The second level of consistency concerns the *instrument mix* and can be assessed through interaction analysis. The instruments in an instrument mix are consistent when they reinforce rather than undermine each other in the pursuit of policy objectives (Howlett and Rayner, 2013). "They are inconsistent when they work against each other and are counterproductive" (Kern and Howlett, 2009, p. 396). Therefore, strong instrument mix consistency is associated with positive interactions and weak instrument mix consistency is characterized by neutral interactions, while instrument mix inconsistency is captured by negative interactions (del Río, 2009, 2010; IEA, 2011b; Sorrell et al., 2003).

Finally, third level policy mix consistency addresses the *interplay of the instrument mix and the policy strategy*. This overall policy mix consistency is characterized by the ability of the policy strategy and the instrument mix to work together in a unidirectional or mutually supportive fashion (Howlett and Rayner, 2013), thereby contributing to the achievement of policy objectives. Thus, a higher degree of first- and second-level consistency positively influences the degree of third-level consistency. This implies that a consistent policy strategy is implemented by a consistent instrument mix encompassing instruments with design features capable of reaching the objectives.

Coherence of Processes

To characterize policy processes we use the term *coherence*, thereby following studies that focus on the process dimension (Den Hertog and Stroß, 2011; OECD, 2001, 2003a, 2003b). Building on Jones (2002), we suggest defining policy coherence as referring to synergistic and systematic policymaking and implementation processes contributing—either directly or indirectly—towards the achievement of policy objectives. Such more synergistic and systematic policy processes may be achieved through a number of structural and procedural mechanisms, such as strategic planning, coordinating structures and communication networks (Ashoff, 2005; den Hertog et al., 2004; Giest, 2015; OECD, 1996, 2001).

We highlight two key features of this definition. First, it addresses the coherence of policy processes *across different policy fields and governance levels*. These processes shape all elements of the policy mix, thereby underlining that neither the policy strategy nor instruments are seen as given. Second, it points to the need of systematic capabilities of policymakers (Jacobsson and Bergek, 2011; Rayner and Howlett, 2009). That is, coherence of policymaking and implementation requires advanced organizational capacities, including, for example, the ability to assemble related knowledge from diverse sources, to build networks with all relevant actors, to engage with multiple stakeholders, to anticipate future developments, or to self-reflect on values, processes and tools (Howlett and Ramesh, 2016; Lindner et al., 2016; OECD, 2015; Quitzow, 2015).

Two major tools for improving policy coherence are *policy integration* (Candel and Biesbroek, 2016; Howlett et al., 2017; OECD, 2003a; Underdal, 1980) and *coordination* (Bouckaert et al., 2010; Magro et al., 2014; OECD, 1996).[9] The former can improve policy coherence by enabling a more holistic thinking across different policy sectors, at the same time involving more holistic

processes. In contrast, the latter can strengthen coherence by aligning the tasks and efforts of public sector organizations, e.g. in enhancing information flows through formal mechanisms.

In conclusion, we want to stress that it may be impossible to actually achieve complete coherence and consistency (Carbone, 2008; Hoebink, 2004; McLean Hilker, 2004). Reasons for this may include the complexity of the systems and associated policy challenges, including path dependence and lock-in, resistance of actors with vested interests, conflicting interests and tensions, policy myopia and fragmentation of policymaking (Howlett, 2014b; Meadowcroft, 2007; Nair and Howlett, 2017; Unruh, 2000, 2002). Therefore, "the aim is to make progress towards maximum coherence within the limited resources available" (McLean Hilker, 2004, p. 4), thereby also striving to maximize policy mix consistency. Yet, ultimately, neither coherence nor consistency should be seen as goal in itself but rather as means for improving the performance of a policy mix.

Credibility

In addition to consistency and coherence, credibility may also be relevant for describing the nature of policy mixes, particularly when dealing with long-term policy challenges that require longer time horizons, such as is the case for sustainability transitions (Rogge and Schleich, 2018; Rogge and Dütschke, 2018). Here, we define credibility as the extent to which the policy mix is believable and reliable, both overall and regarding its elements and processes. Such policy credibility refers to the challenges that short time horizons (electoral cycles) pose for policymakers' credibility (Kydland and Prescott, 1977), with delegation suggested as one solution (Gilardi, 2002; Majone, 1997). This classic argument has been applied in the environmental realm (Bradshaw, 2003), and particularly in climate policy (Helm, 2003).

Given that a lack of credible commitments to future climate policy has been identified as raising compliance costs substantially (Bosetti and Victor, 2011; Cian et al., 2012), there is a growing interest in exploring solutions to such commitment problems (Brunner et al., 2012; Nemet et al., 2017). Accordingly, policy credibility may be influenced by institutional and policy design, such as the delegation of competencies to independent agencies, the provision of transparency and trust, or decentralized policymaking. In addition, the operationalization of targets by a consistent instrument mix may enhance the credibility of the policy mix (Reichardt and Rogge, 2016). Ultimately, we argue that the credibility of the policy mix may play an important role in the achievement of policy objectives, such as those related to sustainability transitions, and thus may play a central role for policy design.

Comprehensiveness

Another policy mix characteristic that has been suggested to be of relevance for sustainability transitions is *comprehensiveness* (Costantini et al., 2017; Sovacool, 2009). Following further conceptualizations in the management literature (Atuahene-Gima and Murray, 2004; Miller, 2008), here we define it to capture how extensive and exhaustive its elements are and the degree to which its processes are based on extensive decision-making.

That is, comprehensiveness of the elements of the policy mix implies that the policy mix is constituted of both a policy strategy, with its objectives and principal plans, and at least one instrument in the instrument mix operationalizing the policy strategy. The comprehensiveness of this instrument mix is determined by the degree to which the instrument mix addresses all relevant market, system and institutional failures, including barriers and bottlenecks (Lehmann, 2012; Sorrell et al., 2004; Weber and Rohracher, 2012). As such, a comprehensive instrument mix

may address all instrument purposes, such as in the case of innovation policy of technology-push, demand-pull and systemic concerns. Another example from the field of energy efficiency policy is to assess the comprehensiveness of instrument mixes in terms of technology-specificity and the level of complexity and costliness of energy efficiency measures (Rosenow et al., 2017). By contrast, the comprehensiveness of policy processes can be influenced by their structure, rigor and thoroughness (Atuahene-Gima and Murray, 2004).

Dimensions

All three building blocks of the policy mix concept can be specified along a number of dimensions, such as the policy field, governance level, geography and time. These dimensions capture the space in which interactions can occur (Flanagan et al., 2011) by pointing to the origin of the different components of the policy mix.

The first dimension, *policy field*, refers to the policy domain, such as energy, environmental, climate, innovation, technology, science, industrial and transition policy (van den Bergh et al., 2007). Analyzing policy mixes across policy fields matters because internal and external inconsistencies and incoherencies within and across policy fields could render these mixes ineffective (Huttunen et al., 2014).

For the second dimension, *governance level*, we focus on the distinction between vertical and horizontal governance, a distinction typically made in studies on policy coherence and consistency (Carbone, 2008; den Hertog et al., 2004; Pal, 2006) and policy integration (Howlett et al., 2017). The vertical level differentiates, for example, between the EU and its Member States as well as between international, federal or local levels. It further distinguishes between government departments and implementing agencies. In contrast, the horizontal level allows for differentiating between different political or administrative entities at the same vertical governance level, such as federal departments of different policy fields.

Third, the *geography* dimension relates to the space from which the policy mix originates and reflects the increasing attention to the geographical perspective, such as in transition studies (Coenen et al., 2012; Raven et al., 2012; Späth and Rohracher, 2012). An example of this is a regional policy strategy and instruments targeted towards a certain geographical region (Navarro et al., 2014).

Finally, *time* is another crucial dimension of policy mixes, capturing their dynamic nature (Flanagan et al., 2011; Howlett and Goetz, 2014; Newman and Howlett, 2014). That is, a policy mix develops over time in terms of its elements, processes and characteristics. First, the *elements* of the policy mix change over time, with new instruments and goals having been added, existing ones amended and others terminated in processes of policy packaging or patching (Howlett and Rayner, 2013; Kern et al., 2017). Policy instruments may not only change in terms of their contents, ideally resulting in continuous improvement (Kivimaa, 2007), but also in terms of their effects as they are interpreted against changing rationales (Flanagan et al., 2011) and changing contexts. Similarly, and resulting from changing instruments, interactions are not stable over time, either, which may cause the instrument mix to drift out of alignment (IEA, 2011b; Sorrell et al., 2003).

Second, policy *processes* may also change over time (Flanagan et al., 2011). In fact, it has been argued that policymaking should be designed to ensure adaptation and policy learning under conditions of deep uncertainty (Allen et al., 2011; Haasnoot et al., 2013; Nair and Howlett, 2017). That is, adaptive policymaking allows for adjusting the policy mix as "the world changes and new information becomes available" (Walker et al., 2001, p. 283), thereby enabling policy learning for transitions (Loorbach, 2007; Rotmans et al., 2001), for example. Such policy

learning, including from policy failure (Bennett and Howlett, 1992; Dunlop, 2017), is key for designing policy mixes for sustainability transitions.

Finally, *characteristics* can change over time. For example, large, unexpected changes in policy instruments may lead to temporal inconsistency of the instrument mix and thus to a loss of credibility (White et al., 2013). In contrast, the compliance with long-term targets set beyond electoral cycles may be one factor through which policy credibility can be build up over time (Nemet et al., 2014). Another example concerns increases of coherence due to a move away from unscheduled ad-hoc changes to advanced planning, prior announcements and stakeholder participation in the light of envisaged changes to the policy mix.

Conclusion

This chapter argued for paying greater attention to the complexity and dynamics of real-world policy mixes. Specifically, it stressed that policy mix design goes beyond the combination and evolution of interacting instruments and goals but should adopt a broader scope. This includes the expanded consideration of policy mix characteristics, such as policy credibility, and the explicit coverage of policy strategies with their long-term targets. It also implies a balanced treatment of policy design (the noun) and policy designing (the verb) by strengthening the analysis of policy processes and doing so in an integrated manner.

Because the extended policy mix concept presented here draws on several disciplines and aims for interdisciplinary research into policy mixes, we have identified and attempted to reconcile some ambiguities in the treatment of key terms. As such, the idea was to build bridges between different policy mix conceptualizations of use to policy designers. For example, Howlett and Cashore (2009) pointed to the importance of distinguishing policy to enable a better understanding of policy change, suggesting three levels for policy content and two levels of policy focus. Building on this distinction and combining it with the extended policy mix concept proposed by Rogge and Reichardt (2016) could lead to an updated focus-content-matrix which explicitly adds a strategy level and highlights policy processes (Table 3.3).

The extended policy mix concept for sustainability transitions was developed to provide an integrating analytical framework that may aid empirical research by pointing to previously neglected aspects to be considered in empirical policy mix studies, such as those analyzing the link between policy and socio-technical change. We argue that better policy design requires greater emphasis on evaluating the impact of existing policy mixes to enable better informed future policy design. Figure 3.2 therefore outlines how the three building blocks of the policy mix concept may relate to each other and to socio-technical change, with these linkages illustrated with numbered arrows representing avenues for future research informing policy design.

For achieving sustainability objectives, not only the instrument mix with its interacting instruments (1) but also the policy strategy (2) is important to consider, with their impact on socio-technical change likely being a joint one due to the combined effect of the elements of a policy mix (3) (Reichardt and Rogge, 2016; Schmidt et al., 2012). In addition, studies should go beyond analyzing how these elements of the policy mix come about and why they change (4) but combine this with an investigation of how the resulting strategies and instruments impact socio-technical change (4+3). Such a combined analysis of policy processes and elements may enable highlighting the impact of politics and power not only on targets and instruments but also on system innovation (Kern and Rogge, 2017). A closer look at the processes of policymaking and implementation may also reveal a direct link between such policy processes and socio-technical change (5) (Reichardt et al., 2017). Of course, the impact of policy mixes can have repercussions

Table 3.3 Implications of Broader Policy Mix Perspective for Focus-Content-Matrix

Policy Focus	Policy Content: High Level Abstraction	Strategy Level	Instrument Level
Policy Ends	*Aims*	*Objectives*	*Goals*
Lead question	What general types of ideas govern policy development?	What does policy formally want to achieve?	What are the specific requirements of an instrument?
Operationalization	Vision	Targets	Settings
Policy Means	*Logic*	*Principal Plans*	*Calibrations*
Lead question	What general norms guide instrument preferences?	What is the proposed instrument pathway for achieving objectives?	What specific instrument type and design is utilized?
Operationalization	Paradigm	Roadmaps	Type and design features
Policy Processes	*Style*	*Strategizing*	*Implementing*
Lead question	What general preferences guide policymaking and implementation?	What processes govern strategy formulation and adaptation?	What processes govern instrument (mix) formulation and adaptation?
Operationalization	Standard operating procedures	Strategy processes	Instrument processes

Source: Combination of Howlett and Cashore (2009) and Reichardt and Rogge (2016).

for the evolution of the policy mix, as it may have to be adjusted, for example due to technological developments (Hoppmann et al., 2014) or other feedback effects (Edmondson et al., 2017). Such patterns of the co-evolution of the policy mix and the socio-technical system can only be revealed through dynamic analyses, for example regarding the joint development of technological innovation systems and policy mixes for emerging green technologies (Reichardt et al., 2016). Finally, policy mix characteristics may be crucial for assessing the performance of policy mixes (6) (Costantini et al., 2017; Reichardt and Rogge, 2016; Rogge and Schleich, 2017), and may themselves be determined by policy mix elements (7) and policy processes (8). In this context, research should also investigate the interplay between different characteristics, such as between the consistency of the policy mix and its credibility. In conclusion, such extended policy mix analysis may significantly enhance our understanding of the complex links between policy and socio-technical systems and their co-evolution (9), thereby enabling better policy design.

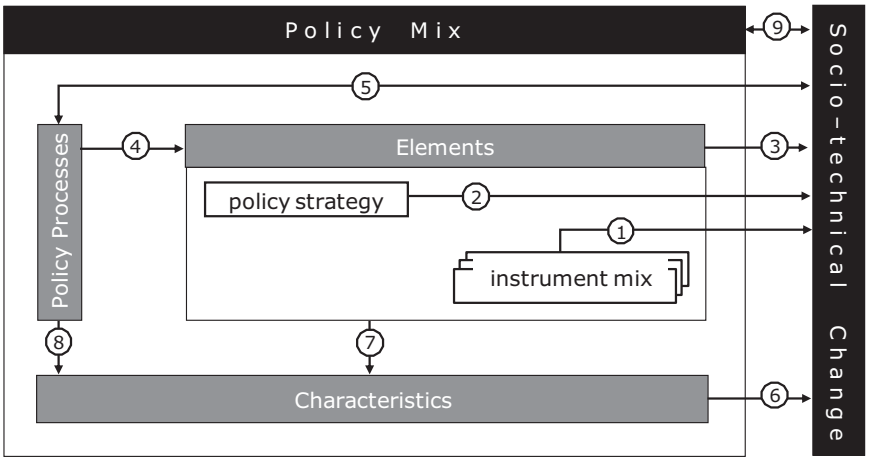

Figure 3.2 Framework for Studying the Link Between Policy Mixes and Socio-technical Change

Source: Adapted from Rogge and Reichardt (2016).

Of course, such research is faced with multiple analytical challenges, among them the setting of the boundaries for the considered policy mix and its impact (Ossenbrink et al., 2018). For example, regarding the scope of the policy mix, analysts have to decide whether it is sufficient to focus on green niches (Smith and Raven, 2012) or whether they also need to pay attention to including policy for competing technologies, such as subsidies (see Chapter 17 in this handbook). In line with Kivimaa and Kern (2016), we suggest that research should not only include the policy mix creating the protected space for an emerging solution but also the policy mix of the encompassing system, thereby arguing for greater attention to destabilization policies. An example for deciding on the appropriate boundaries for the analysis, i.e. on the unit of analysis, concerns the relevant actors (e.g. authorities, companies, consumers) and their networks (e.g. industry associations and non-governmental organizations) to be included in the analysis of policy processes (Markard et al., 2016; Normann, 2017). One possible criterion for their inclusion may be their degree of influence and power in decision-making. Clearly, boundary setting is by no means a straightforward exercise, and the initially set boundaries may change as the analysis proceeds.

Another analytical challenge concerns the operationalization of policy mix variables for empirical studies. Research does not only need to capture the relevant instruments with their design features, such as stringency (Botta and Koźluk, 2014), but may also need to identify

long-term and interim targets and principal plans of the policy strategy. Such quantitative targets could then, for example, be integrated in a policy mix index, as was done by Hess and Mai (2014). For the analysis of policy processes, researchers can draw on the standard methods and variables for operationalizing them (Howlett et al., 2009; Sabatier and Weible, 2014). Operationalizing policy mix characteristics may perhaps pose one of the greatest analytical challenges, as official databases or documents typically do not capture such characteristics. Rather, their operationalization may require original data collection and interpretation (Costantini et al., 2017; Rogge and Schleich, 2018). Overall, policy design studies applying the extended policy mix concept are likely to require the development, testing and further refinement of novel ways of operationalizing relevant policy mix components.

In conclusion, this chapter calls for assuming a broader policy mix perspective and unpacking the link between policy mixes and socio-technical change, for which we envisage three main areas of future research. First, empirical studies should analyze the interplay within and between the three building blocks of policy mixes and how such interplay affects socio-technical change. Second, the nature of policy processes—including the underlying politics—and their direct and indirect influence on the performance of policy mixes should be explored in more depth. Third, empirical research should investigate the determinants and relevance of policy mix characteristics, such as credibility. We argue that such greater emphasis on policy mix evaluation is a prerequisite for better informed policy design.

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Notes

1. This chapter draws on joint work with Kristin Reichardt focusing on policy mixes for sustainability transitions (Rogge, K.S. and Reichardt, K., 2016. Policy mixes for sustainability transitions: An extended concept and framework for analysis. *Research Policy*, 45 (8), 1620–35). As Kristin left academia, she was happy for me to produce this policy design-oriented chapter on my own. For this, I have shortened our original work, added recent publications and better embedded our extended policy mix concept in the policy design literature.
2. While some base their definition on the absence of contradictions and non-conflicting signals (Forster and Stokke, 1999; van Bommel and Kuindersma, 2008), others refer to the consistency or coherence among policies (Bigsten, 2007; Di Francesco, 2001; OECD, 1996), while still others speak of consistency or coherence between objectives and instruments (Fukasaku and Hirata, 1995; Picciotto, 2005).
3. Policy coordination is a formal policy process aiming to get "the various institutional and managerial systems, which formulate policy, to work together" (OECD, 2003a, p. 9). Subsets of policy coordination are cooperation and collaboration (Bouckaert et al., 2010).
4. Environmental policy integration means "the incorporation of environmental objectives into all stages of policymaking in non-environmental policy sectors . . . accompanied by an attempt to aggregate presumed environmental consequences into an overall evaluation of policy, and a commitment to minimize contradictions between environmental and sectoral policies" (Lafferty and Hovden, 2003, p. 9).
5. Targets can be characterized by a number of factors, including their ambition level, their type (e.g. specific, absolute), their governance level (e.g. EU, national), their scope (e.g. headline target, sub-target), their time horizon (e.g. long-term, interim), or their legal nature (e.g. binding, aspirational, voluntary); see EU (2013) and Philibert and Pershing (2001).
6. Smits and Kuhlmann (2004, p. 25) distinguish between five systemic functions: "management of interfaces, building and organizing systems, providing a platform for learning and experimenting, provision of strategic intelligence and demand articulation."

7. The legal form determines, for example, the binding character of an instrument, which can range from voluntary agreements to compulsory measures.
8. The abstract design features found in the literature concern not only instruments but also include aspects relevant for policymaking and implementation, such as continuous improvement (Kivimaa and Mickwitz, 2006) and enforcement (Kemp, 1997), as well as for the overall policy mix, such as credibility (Kemp and Pontoglio, 2011)).
9. While some studies view coherence as equivalent to integration and coordination (Duraiappah and Bhardwaj, 2007; Geerlings and Stead, 2003), we follow others in seeing them as distinct formalized tools for improving policy coherence (Carbone, 2008; Di Francesco, 2001; McLean Hilker, 2004; OECD, 2003a).

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4

THE PROMISE OF CO-DESIGN FOR PUBLIC POLICY[1]

Emma Blomkamp

Summary at a Glance

Co-design is a promising approach that offers creative and participatory methods for engaging different kinds of people and knowledge in the policy process. More documentation, analysis and evaluation are nonetheless required to determine the extent to which co-design can meet its innovative and transformative potential in policymaking.

Introduction

On a cold morning in 2015, a small group of casually attired public-sector workers gathered in a run-down building in South Auckland, New Zealand. Surrounded by walls plastered in colorful sticky notes, the co-design team warmed up over cups of tea and through a creative icebreaker activity. Local families, predominantly from indigenous (Māori) and Pacific Island cultures, began arriving for interviews, in which they would share their attitudes to and experiences of driver licensing. These interviews helped the team build empathy with, and understand the perspectives of, people who were struggling to navigate and follow New Zealand's graduated driver licensing system. Over the following weeks, the team would compare, analyze and synthesize the data from this ethnographic design research to build up a picture of the licensing system from the perspective of these 'end users.' The insights and issues they identified would later be used to challenge and inspire a wide range of people to come up with ideas to improve the system. After these ideas had been tested with more end users, the preferred concepts were presented in a 'case for change,' which made recommendations to key stakeholders in government to implement different policies and services in order to result in more people driving legally (Auckland Co-Design Lab 2016).

This vignette of the work of the Driver Licensing Challenge from the Auckland Co-Design Lab provides a tangible example of the practice of co-design in the public sector. Funded by New Zealand's central government and hosted by the country's largest local government, the Auckland Co-Design Lab was established to provide a 'neutral space' for multi-agency teams "to explore the use of co-design and other innovative approaches to address complex social issues" (Auckland Co-Design Lab 2015). It offers one of many examples of co-design being used to effect change in a governmental context.

Many claims about the need for and benefits of co-design in the public sector have been made recently, particularly by innovation units and consultants and as part of reform processes in Australia and New Zealand. Co-design is often framed as a new or different way to address longstanding social challenges that the public sector is failing to address. It has been put forth as a promising approach to improve public policies and government services in discussions of citizen participation in the Australian government's policy process (Holmes 2011; Lenihan and Briggs 2011; DIIS 2017) and as part of the New Zealand government's Policy Project (Government Economics Network 2016), as well as by other public-sector agencies (e.g. Evans 2012; DHHS 2016). In addition to the Auckland Co-Design Lab described above, co-design was a key ingredient in DesignGov, the Australian Government's 18-month pilot initiative "to demonstrate the value of design-led innovation" (Treadwell 2013). Co-design is also a key plank in the Victorian State Government's ten-year plan to address family violence, which promises: "All of these reforms will be designed and delivered in partnership with the Victorian community" (DPC 2016, ix). Consequently, 'statewide co-design' and 'local co-design processes' are being carried out to shape the development of a network of Support and Safety Hubs, whereby co-design is being used to ensure that the hubs are "implemented and informed by local context, delivering services relevant to local needs" (State Government of Victoria 2017). The term co-design is increasingly common in government discourse like this, yet a clear and shared definition is lacking. Like co-production, co-design has been "granted an influential role in the future of . . . public governance on the basis of little formal evidence" (Durose et al. 2017, 137). Consequently, co-design risks being little more than a buzzword in the public sector. This chapter addresses confusion around the meaning of the term, sets forth a comprehensive definition and identifies associated concepts and relevant literature for further exploration. It also raises questions about the appropriateness of available evidence to support the claims being made about the benefits of co-design.

This analysis is based on a review of literature that discusses co-design practice in the context of government policy and services. In part because there are few academic articles specifically on co-design for public policy, but also because of the importance of developing a practice-based understanding, this review draws extensively on 'grey' literature, including presentations, blogs, discussion papers and reports produced by design consultants, non-governmental organizations and public-sector departments. It is also informed by scholarly literature on design-for-policy, public-sector innovation, design research and policy sciences. While academic and practice-based accounts of human-centered design and co-design in the public sector typically focus on *service* design, this chapter concentrates on the unique context of *policy* design in Australia and New Zealand. It is beyond its scope to review the full body of literature on participatory and community-based models of planning, democracy, development and governance; nonetheless, the author acknowledges these important antecedents and related concepts. From this perspective, co-design is not entirely new—it draws on established traditions of participation, collaboration and empowerment in public policy and planning. Yet the unique combination of these features within an innovation process, involving principles and tools from the field of design, distinguishes co-design for policy from traditional approaches in the aforementioned disciplines. Responding to some conflation and confusion of terms in practice, this chapter carefully elucidates distinctions between co-design and several commonly associated approaches.

The review opens by putting forth a definition of co-design as a methodology for policymaking. Breaking it down into a process, principles and practical tools allows us to consider its philosophical underpinnings, implicit goals and related concepts. The chapter then outlines challenges that question the feasibility of achieving these outcomes in the contemporary context of policymaking. These risks and potential limitations are likely to be of particular interest to

practitioners and public-sector managers. Finally, recognizing the growing interest in the emerging discourse and practice of co-design in public policy contexts, it sketches potential directions for future research.

Towards a Definition of Co-Design for Policy

For specialist practitioners, co-design is a distinct set of principles and practices for understanding problems and generating solutions. It signifies the active involvement of a diverse range of participants in exploring, developing and testing responses to shared challenges. In the public sector, co-design is often invoked as a more effective, democratic or innovative alternative to conventional approaches to community engagement, public participation, service design and policy development. Many definitions and synonyms appear in discussions of co-design, which can make it difficult to pinpoint examples of practice or evaluate their impacts. When co-design is loosely defined and operationalized as any type of collaborative or participatory activity, almost everyone seems to be doing it. For instance, of the 466 respondents to an international PwC survey of public service workers, more than 90 percent reported being involved in a 'co-design' project that included service users in the design or development of a service (Bradwell and Marr 2008, 35). The Demos report on the survey results acknowledges that it would be "legitimate to ask whether the processes described by respondents really involve in-depth collaboration, or whether they betray more minimal, customer-service approaches" (Bradwell and Marr 2008, 38). Highlighting the difference between such approaches, this chapter argues that only the former should be described as co-design.

A simple way to understand the term *co-design* is to break it down into its constitutive parts. The 'co' is typically considered an abbreviation for 'cooperative' or 'collaborative' design, which draws on the Scandinavian tradition of participatory design (Steen et al. 2011, 53; Burkett 2012, 6; Torjman 2012, 19). Participatory design methods emerged out of user involvement in workplace and software systems design nearly 40 years ago, and co-design continues to be an important approach in information and communications technologies today (Sanders 2014, 61–2; Kimbell 2015, 65). Within built environment governance, the traditions of participatory planning and community design can similarly be traced back to the 1960s (Sanoff 1990). Like the concepts of 'user-centered innovation' and 'co-creation,' the notion of co-design comes largely from private sector innovation literature, but "[has] been increasingly applied within public services" (Farr 2013, 447). 'Design' in this sense draws on the discipline of industrial design, rather than the traditionally broad conceptualization of 'policy design' in political studies literature—as a problem solving process that configures a pattern of action in order to achieve a specific governmental outcome (O'Rafferty et al. 2016, 2). The growing interest in co-design follows the broader proliferation of 'design thinking' throughout the private and public sectors, as principles and methods from design and related fields have been taken up by other sectors (Brown and Wyatt 2010; Mintrom and Luetjens 2016).

A shared definition of co-design that is appropriate for governmental contexts is needed in order to advance practice and research in this domain. An appropriate definition of co-design as a methodology for policymaking would recognize it as a design-led process, involving creative and participatory principles and tools to engage different kinds of people and knowledge in public problem-solving. Co-design for policy thus has three key components—process, principles and practical tools (see Table 4.1)—each of which are discussed in turn below. This understanding is based on both academic and practitioner accounts of co-design and resembles Elizabeth Sanders' (2014) description of co-design as method, mindset and tools. The definition proposed here has been adapted specifically for the context of public administration.

Table 4.1 Key Components of Co-Design for Policy

Process	Iterative stages of design thinking, oriented towards innovation
Principles	Participative, inclusive, respectful, iterative, outcomes-focused
Practical tools	Creative and tangible methods for telling, enacting and making

Co-design is a design-led process. There are many iterations of 'design thinking' and design-led innovation models in use among private, public and community organizations around the world. Design thinking can be summed up as an iterative, human-centered and action-oriented process for innovation (Cohen 2014). In more scholarly terms, design thinking has been defined as the application of abductive reasoning to reframe an unstable problem situation and create a new object, service or system (Dorst 2010). These definitions and associated models of 'design thinking' attempt to codify design processes so that non-designers can understand and use them. One of the most well-known models is the 'Double Diamond,' developed by the UK Design Council (2007) based on research with 11 international companies, and which aims to visually represent common phases in the process of design. Common features of design-based models include iterative stages of divergence and convergence (going wide and then getting focused), within a series of phases starting with 'discovery' or 'inspiration,' leading to 'design' or 'ideation,' and followed by 'delivery' or 'implementation' (see e.g. IDEO, n.d.; Evans and Terrey 2016, 246). As with the policy cycle (see e.g. Colebatch 2005), in practice this process is not so linear or sequential. Moreover, the dominant problem-solving and action-oriented models of design can be critiqued for the monocultural (Eurocentric) and neoliberal values that are embedded within them (Akama 2018).

Defining co-design as a design-led process is nonetheless important, as it indicates that it is a methodology for innovation. It is about generating and testing new solutions to public problems, not merely offering creative approaches to consultation or 'co-production' at the stage of delivery. Co-design thus challenges conventional approaches to planning and policymaking, as it requires wide input into problem definition and the development of solutions, rather than merely offering the opportunity for citizen or stakeholder feedback once a policy or plan has been formulated by specialist professionals (Al-Kodmany 2001, 118). Moreover, it recognizes that "the process is continuous and ever changing," which has implications for policy designers whose job is "no longer to produce finished and unalterable solutions" but to continuously co-create and negotiate solutions with people affected by policy issues (Sanoff 1990, 7).

Co-design follows the principles of participatory design. A distinguishing feature of co-design is the philosophy that underpins it, based on the radical roots of participatory design. As Sanoff (1990, i) explains, 'this approach is based on the democratic concept whereby people affected by design decisions should be involved in the process of making the decisions.' Applied to policy, this means enabling or empowering the people affected by a policy issue to actively contribute to developing a solution for it. Co-design thus aligns normatively with community-driven development and deliberative democracy, which also seek to enhance citizen participation and empowerment (Evans and Terrey 2016, 244). Co-design practitioners and guides often talk about these principles as a 'mindset.' Sanders (2008), for instance, distinguishes between a 'participatory mindset' and 'expert mindset.' The participatory mindset is based upon egalitarianism (Sanoff 1990, 1), a "belief that all people are creative" (Naranjo-Bock 2012), and a 'faith' that every individual has "the capacity to participate in and direct change in their lives" (Burkett 2012, 8). As "experts in their own experiences," citizens and stakeholders should be involved in designing services and policies that relate to those experiences (Cabinet Office 2017).

Lived experience is thus treated as a type of expertise in participatory design, challenging the usual privileged position of external experts in policy advisory systems (Howlett and Migone 2013) and the traditional 'big-ego design' approach in which gifted individuals impose their "design expert's vision and ideas as if they were the only possible solution" (Manzini 2015, 66). Like the role of the designer in a design charrette (an established approach to co-design in urban planning), the policymaker taking a co-design approach "swaps from a prima donna role to a more serving and/or facilitating role" (Roggema 2014, 20). This need not mean a loss of scientific evidence or professional expertise; rather, an 'additive' co-design approach can bring formal evidence together with local knowledge and experiential expertise (Durose and Richardson 2016, 41). If people with local knowledge and lived experience are not actively involved in the design process, but emphasis is put on their views and experiences, the process could be described as user-centered or human-centered design. It is only *co*-design if people who are affected by the issue are *active participants* in the design process. In this way, co-design involves the key principles of participation, inclusivity, respect, iteration and an outcomes focus (NCOSS 2017, 3).

Co-design uses practical tools to enable participation and to access, generate and test experiences and ideas. While co-design is more than a 'toolkit,' the visual and tangible methods that it offers are one of its key characteristics. Effective communications media, mapping and other visualization tools are, in particular, recognized in the participatory planning literature as essential for facilitating citizen participation (Sanoff 1990, 7; Al-Kodmany 2001; King et al. 1989; Roggema 2014). According to Sanders (2014), there are three main types of techniques for co-design: telling, enacting and making. Using these techniques can provide rich evidence of "real rather than assumed behaviours" (O'Rafferty et al. 2016, 15) and of tacit knowledge that is ingrained in people's everyday experiences. Methods such as diaries, collages, card sorts, model-building and various forms of mapping and role playing can help to reveal knowledge that is non-verbal, holistic, non-linear, emotional or intuitive and which may not be uncovered by other methods (Akama and Prendiville 2016, 31–4; Sanders 2014). This is different from deliberative approaches to policymaking, which focus on telling and include very little enacting or making. Co-design does not subscribe to the deliberative policymaking ideals of communicative rationality and discourse ethics, which assume that policy problems can be solved through an open, rational and cognitive discussion (Gottweis 2007, 238–9; Mclaverty and Halpin 2008).

Although they may be creative experts in their own lives, many people are likely to need support or facilitation to express themselves and meaningfully participate in co-design. An important part of the co-design process is having a skilled facilitator who can choose the most appropriate tools to enable people to communicate and engage with each other, as well as feel comfortable and inspired enough to envision their own and others' ideas (Al-Kodmany 2001, 126; Sanders and Stappers 2008, 12). Some tools come from commercial design disciplines; others may draw on methodologies from, for example, community engagement and systems thinking. Design is seen as offering particularly powerful tools for collective creativity, especially by visualizing complex ideas and flattening hierarchies (Katz, cited in Service Design Network 2016, 84; Kimbell 2015; Sanders 2014).

The creative techniques of co-design can help to generate and test ideas as rapidly and pragmatically as possible. Prototyping is an important stage of co-design and embodies the features of co-design as process, principles and practical tools. Prototyping is a quick, low-cost way to test an idea (or aspect of it) by creating an early sample or model and eliciting rapid feedback on it. The sample or model might be made out of paper or plasticine, role-played or shown on video. The objective is to receive immediate feedback from existing or potential users in order to refine or discard the idea. For example, as part of an initiative to improve outcomes for older Australians in private rental accommodation, the Australian Centre for Social Innovation (TACSI

Table 4.2 Similar (but Distinct) Approaches to Co-Design

Name of Approach	*Definition*	*Key Difference(s) from Co-Design*
Community Engagement	Proactively seeking community values, concerns and aspirations, in order to incorporate them into decision-making (Moore et al. 2016).	Does not necessarily follow a design-led process, lead to innovation or involve creative methods.
Co-Production	A partnership approach to the *delivery* of public services, sometimes encompassing the whole policy process (from design to implementation) (Bracci et al. 2016, 7).	Not necessarily involving a design or development process, or creative methods—may focus solely on implementation.
Participatory Democracy	A form of democratic government in which citizens have ample opportunity to make decisions about public policy (Bevir 2009, 130).	Stronger emphasis on ideals of self-rule and self-determination; not necessarily involving a design-led process or creative methods.
Deliberative Democracy	A form of democratic government based on the unconstrained exchange of arguments and reasoned discussion (Cooke 2000, 947–8)	Strong emphasis on rational dialogue and practical reasoning, rather than design thinking, creativity and abductive reasoning.
Human-centered Design	A contextualized design-led methodology that incorporates end users' needs and aspirations and involves citizens and other stakeholders in the design process in different ways (van der Bijl-Brouwer 2016)	Users, citizens or stakeholders may be minimally or passively involved in the design process and do not necessarily contribute to the development of solutions.

2017) developed paper prototypes to explore policy options. They created visual representations contrasting 12 current and desired clauses in residential tenancy law, such as images depicting increased security of tenure or increased ability for personal expression in the home, to rapidly elicit feedback from citizens and stakeholders. They also developed scenarios based on their insights drawing on "the lived experience of baby boomers," using toy figurines, sticky notes and other props, to walk through the implications of policy changes (Burkett 2016). These prototypes functioned as 'learning devices' (Burkett 2016). They illustrate the use of prototyping in policy design to: materialize interactions in complex systems; imagine alternative futures; and bring together different types of participants and forms of knowledge, especially to anticipate responses to policy issues and designs (Kimbell and Bailey 2017). Prototyping has hence been described as a 'design experiment,' which "claims to provide an evidence base about 'what works' in the early stages of the development of an intervention"; and which may also "provide a staging post for a broader and more generalisable test in the future" (Evans and Terrey 2016, 248).

Various comparisons have been made in the elaborated definition above, illustrating the difference between co-design and related but distinct approaches, such as human-centered design and co-production. Table 4.2 more explicitly distinguishes between these concepts to highlight what is unique and distinctive about co-design for policy.

Claims About the Benefits of Co-Design

Many claims are being made by public servants, scholars and consultants about the benefits of applying co-design in the public sector. In particular, co-design is seen to improve idea generation, service delivery, project management and longer-term outcomes (Steen et al. 2011; DHHS

and Peer Academy 2016, 11). These claims are predominantly framed in the context of product and service design, but they are often extended to policy design. The unique features of government and policymaking may mean that evidence and best practice from other sectors is not applicable or transferable, though. And while co-design may have transformative effects, many of the claims about its benefits have not been rigorously evaluated. In their peer-reviewed article on the benefits of co-design, for instance, Steen and colleagues (2011) do not describe the methodology of their literature review. Some of their key sources are little more than pamphlets published by the UK Design Council, advocating for a particular approach and providing little to no research evidence to substantiate their analysis. The plethora of grey literature on public and social design labs is also full of unsubstantiated claims (see McGann et al. 2017; Kieboom 2014, 17–19), and to date there is a lack of research critically examining these assertions. Explanations for the weak evidence base surrounding co-production could equally apply to that of co-design: "its elasticity as a term" and the lack of appreciation for qualitative and case study research methodologies (Durose et al. 2017, 136).

The lack of documentation and published evaluations of co-design approaches in public administration and policy limits knowledge-sharing and evidence-building. There is nonetheless evidence from some other fields, including healthcare, urban planning and the private sector, about the impacts of using co-design methodology. Some findings from evaluations of the design of public services may be particularly relevant for policy contexts. Healthcare co-design experiments, for example, have shown that applying a participatory design approach to improve the patient experience, specifically by reducing patient waiting time in Emergency Departments, has increased efficiency across the health system in the UK and Australia (Frontier Economics 2013; Piper et al. 2012). Academic analysis of 'experience-based co-design' approaches suggests that this consistently staged model of co-design has contributed to improvements in both operational efficiency and the inter-personal dynamics of care in hospital settings (Donetto et al. 2015; Larkin et al. 2015; Locock et al. 2014; Palmer et al. 2015; Piper et al. 2012). Its emphasis on 'user participation' has been considered particularly valuable for government and administrators to receive feedback through "co-learning, active collaboration, shared power and decision-making," resulting in service quality improvement (Palmer et al., 2015).

As well as considering the evidence from studies of service design and experience-based co-design in healthcare, literature that focuses on the benefits of citizen participation in policy, planning and governance is also pertinent. It reveals strong instrumental and normative arguments in support of citizen participation in policymaking. From an instrumental standpoint, democratic governments fail to effectively apply conventional policy tools, such as regulation, to complex and contested problems, especially when the public is distrustful of governments or elites (MacArthur 2016, 634; Fischer 2009). Involving citizens in designing and delivering public policy and services may increase quality and effectiveness. Citizens may possess relevant local knowledge and contribute novel ideas because they are not burdened by professional expertise or acculturated to business-as-usual approaches (Fung 2006, 73; Reich et al. 1996). Normative arguments, on the other hand, take issue with the domination of elites in policy, and see participatory mechanisms as an opportunity to strengthen "the depth and quality of a democracy" (MacArthur 2016, 634). There is a lack of empirical research, however, that assesses the impacts of involving citizens and other stakeholders in the design and delivery of public policy and services (Voorberg et al. 2015). Consequently, as Burkett (2012, 5) notes, "there is little evidence about whether participation by more people, or deeper participation by a few key people, is more effective." Co-design practice in the public sector needs to be examined more closely and critically, with particular attention paid to 'who participates' (Fung 2006) and to configurations of power. This would help to understand which 'publics' are being engaged or excluded by current practices,

and to explore their political and social implications, including any possible negative effects of participation (Donetto et al. 2015; Reich et al. 1996).

Despite the lack of evidence of the benefits of co-design for *policymaking*, this review has identified three plausible hypotheses that warrant further investigation. Firstly, the involvement of different types of participants (citizens, 'end users,' stakeholders, professionals and experts) throughout the design process should mean that the definition of problems and generation of solutions better meet the needs of the public and the government. This would likely lead to improved efficacy and efficiency of policy and services. By ensuring that public policy better meets the needs of citizens and stakeholders, co-design may thus help to pre-empt future problems, especially by overcoming the common problem of policy interventions being based on flawed assumptions (O'Rafferty et al. 2016, 15; Bradwell and Marr 2008, 13–15; Lenihan and Briggs 2011). Secondly, offering methods and principles for improving idea generation and experimentation should stimulate innovation within the public sector (Bradwell and Marr 2008, 14; All et al. 2013). This follows the argument in favor of design thinking, initially seen in the private sector, "where it is generally recognised that the quality of design improves the more user interests are integrated into the design process" (Brown, cited in Evans and Terrey 2016, 245). Finally, if participants in the co-design process are likely to strengthen relationships and build trust and mutual understanding, then co-design may indeed build social capital and address disengagement and low trust in government.

This last point on the social value of co-design is particularly important in the context of public policy. Co-design, it has been suggested, "creates a feeling of involvement and ownership" (Bradwell and Marr 2008, 15) by generating "a shared understanding and shared language between participants and designers" and by supporting "a sense of immersion, dialogue and empathy for the perspective of those who will use and experience the design" (Hagen and Rowland 2011). If effective, it therefore offers an approach for addressing disengagement from politics and democracy by enhancing trust in and positive engagement between policy workers, citizens and other stakeholders (Bradwell and Marr 2008, 10, 14; Durose and Richardson 2016). Case studies and other practice-informed analyses have shown potentially transformative results for participants in co-design projects. Participation in planning-related design decisions is seen to increase participants' sense of agency and responsibility and sense of connection to place, community and society (Sanoff 1990; King et al. 1989). By bringing diverse people together and helping them to forge meaningful connections, co-design has contributed to creating social relations (Akama and Prendiville 2016, 34) and building social capital (Bradwell and Marr 2008, 10). Effective facilitation of co-design and trusted relationships between participants and facilitators can lead to a constructive, action-oriented and future-focused dialogue to develop new policy directions (Howell and Wilkinson 2016, 162–4). It may even transform participants through the emotional and social connections they make (Akama and Prendiville 2016, 37–8). It is unclear to what extent these benefits are achieved in practice, if at all, beyond the individual case studies discussed in the literature. There is a need for greater investigation into the process and outcomes of co-design practice in the context of public policy and administration.

The Challenges of Co-Design for Policy

In addition to conceptual confusion, many practical challenges and risks await those applying co-design in a governmental context. The first significant risk identified by Steen et al. (2011, 59) is "diminished *control* over the project, because other people, other departments or other organizations are involved." Secondly, there may be challenges relating to the "increased *complexity* of the project, because the objectives and interests of diverse people, departments

or other organizations must be managed and balanced, which can require extra coordination efforts." Indeed, the literature on experience-based co-design (cited above) commonly highlights its time-consuming nature, although it has been suggested elsewhere that the short-term costs of participatory design are likely outweighed by the long-term benefits (Reich et al. 1996, 171). O'Rafferty and colleagues (2016, 14–15) also identify a number of challenges through their design research on environmental policy in Ireland. Relevant 'dilemmas of co-design' for public policy that they describe include: the gap between co-design research and conventional forms of evidence; legitimacy of co-design activity as perceived by stakeholders and beneficiaries; and the embeddedness of the activity within the policy innovation system.

Examples of co-design in practice are often limited to an early phase in the policymaking process. The UK Cabinet Office (2017) notes, for instance, that "co-design can work at any point in policy design, however it is most commonly used at the beginning of a policy to help understand where a policy needs to focus." Indeed, half of the public sector workers surveyed by PwC reported using co-design only at the beginning of the design process (Bradwell and Marr 2008, 35). Implementation poses a particular challenge for co-design projects, especially when a small number of people have participated in creating a solution that will require significant buy-in and investment to put in place. Co-design typically happens with small, site-specific groups, and it is not obvious how participation and solutions can be scaled into system-wide responses with multiple delivery channels in large organizations (Bradwell and Marr 2008, 39–40; Farr 2013). This is especially challenging given "the complexities of modern organized bureaucracies, networks, democratic mechanisms, and systems of resource allocation" (Chen et al. 2016, 3). It is questionable whether co-design can even be scaled up in this way. Design researchers Akama and Prendiville (2016, 37), for instance, argue that co-design "needs to be firmly rooted in its location, time and people" so that it can progress "organically from rich engagements and deep interactions over time." Recent research on public sector innovation labs that take a design-led approach has similarly suggested that they may be better suited to "singular programs, projects or services" as they struggle with "higher level policy change" (Tõnurist et al. 2015, 20; see also Bason and Schneider 2014, 34–9).

A significant challenge reported by co-design practitioners attempting to apply their craft within the public sector is that the structure and culture of government is not well suited to co-design. Policy officials do not generally respond well to the risks of diminished control and increased complexity, and bureaucratic systems are not designed to be experimental or responsive. Because politicians and government officials typically view themselves as 'sovereign decision-makers' who possess the mandate to rule *for* the people, rather than *with* the people, collaborative policy design may be unattractive to them (Ansell et al. 2017, 479). This tension was illustrated in recent criticism of the Victorian State Government for failing to understand how to work with communities and only ever asking for input once big decisions had already been made, even when it claimed to be 'co-designing' solutions (Donaldson 2017).

There are political and practical implications in the way that co-design challenges and disrupts established approaches to policymaking and "dominant public sector cultures and values" (Evans and Terrey 2016, 260). Co-design, explains Burkett (2012, 7), "involves a shift in the locus of responsibility and control so that 'clients' or users of services become active partners in designing, shaping and resourcing services, rather than being passive recipients of pre-determined services." As Bradwell and Marr (2008, 37) note, "commitment to participation requires a real willingness on behalf of those who have power to share it." Currently, however—at least in the context of environmental policy in Ireland—"the competencies and mind-sets required for co-design are not typically found within the public sector organisations" (O'Rafferty et al. 2016, 15). Effectively applying co-design in the public sector will require significant cultural change

and capacity building to embed "all kinds of new knowledge, structures, and practices" (Lenihan and Briggs 2011, 46; Christiansen 2016). Embedding design into government is not just about upskilling policy workers on designerly methods, but also about bringing other disciplinary knowledge into the design process, and will likely require cultural and structural change to enable different approaches to be applied.

There are a number of methodological concerns, too, particularly around the need to tailor co-design processes and enable meaningful participation. For co-design projects to be effective, the methods and tools need to be carefully selected and appropriately applied to each project (Steen et al. 2011, 59). Particularly careful consideration needs to be given to the means for involving citizens, users or stakeholders in co-design activities. "Merely opening up possibilities for choice and participation" is not enough, notes Burkett (2012, 8); people need to "have access to the information, skills, capacities and support to participate effectively in co-designing services." Shared responsibility and trust between citizens and government are also prerequisites of co-design for policy (Durose and Richardson 2016, 35). A particular challenge, which may be inevitable in some government-led or initiated projects, arises when participants feel resentment or distrust towards a key project partner or sponsor (DMA 2015). This may be an increasing issue, given the already declining levels of trust in government and public institutions (Edelman 2017; Foa and Mounk 2016). The literature on participatory policymaking reveals the risks of co-optation and deepening cynicism if participatory projects are poorly designed, inadequately facilitated or outright manipulative (see e.g. MacArthur 2016, 637–8). Some recent articles on participatory urban planning indeed argue that co-design processes are subject to co-option by neoliberal forces and that participants risk being coerced and given a false sense of agency while legitimizing the political agendas of elites (Kaethler et al. 2017; Palmås and Busch 2015). Similarly, co-production in the United States has been critiqued for co-opting and 'responsibilising' citizens in the state's quest for efficiency and governing at a distance (Durose and Richardson 2016, 36–7).

The potential risks, questionable benefits and inevitable challenges of applying co-design in governmental contexts raise all kinds of issues for further research. While it remains an emerging field, public sector co-design practice is beginning to mature enough to ask questions like: "What kind of co-design works, and where?" (Bradwell and Marr 2008, 11). To paraphrase Burkett (2012, 5)—who notes "the million dollar question" is that of social impact—"Does involving and engaging people in developing, designing and delivering [policy] actually create better [policy] and thus lead to great social impacts?" A more nuanced analysis of participation is needed to understand the efficacy and politics of co-design. Documenting and learning from co-design projects will help to understand when participation is appropriate and how it can be extended (Reich et al. 1996). Following Fung (2006, 67), we could ask, "Who participates? How do they communicate and make decisions? What is the connection between their conclusions and opinions on one hand and public policy and action on the other?" In answering those questions, we could seek to understand whether and, if so, how co-design processes actively seek and effectively integrate a diverse range of views. Evidence from the already cited international survey of co-design in the public sector suggests they often do not do this well—the users were already known to the project team in most cases (Bradwell and Marr 2008, 40).

More documentation and dissemination of the processes and findings from co-design projects are needed in order to develop this knowledge. Without it, we cannot hope to provide practice-based evidence to inform the development of public sector capabilities or support different organizations and disciplines to understand and communicate the benefits and risks of co-design (Steen et al. 2011, 59–60). As O'Rafferty and colleagues (2016, 16) conclude, "further development of the theoretical and practical framework of co-design for policy and public services is

required." Recognizing the value of the "insights of people working on the frontline" and applying theory-based approaches to evaluation could usefully build practice-informed knowledge in this domain (Durose et al. 2017, 136–8). Partnerships between academic researchers and practitioners could help to build a more solid and grounded understanding of co-design for policy.

Conclusion: A Call for More Research and Evaluation on Co-Design for Policy

Claims abound about the benefits of co-design, yet there is limited evidence of the impacts of co-design for developing and implementing public policy. Despite the prevalence of conceptual confusion, limited evidence and likely challenges in practice, this chapter has nonetheless defined co-design in a way that is appropriate for public policy practitioners and researchers. This definition has been based on both academic and practitioner accounts of co-design, in order to advance practice and research in public administration. The description of the key components of co-design as process, principles and practical tools, along with the distinctions made between related but not identical concepts, should help researchers and practitioners to identify and analyze examples of co-design in practice. Rather than treating co-design as a buzzword, this categorical definition serves to suggest that if one of these components is missing, then the approach identified cannot justifiably be called co-design.

The challenges of the governmental context may make it difficult to achieve the potential outcomes of co-design in practice, yet its radical potential to transform the process and outcomes of policymaking warrants further exploration. As a novel means for creatively engaging citizens and stakeholders to find solutions to complex problems, co-design holds great promise for policy. It may help to generate more innovative ideas, achieve economic efficiencies by improving responsiveness, foster cooperation between different groups, reinvigorate trust between citizens and public servants and have transformative effects on participants' agency and wellbeing. If a co-design approach can achieve even some of these benefits, then governmental organizations and policy workers should be exploring ways to adopt and embed this practice. It remains unclear, however, whether co-design can feasibly leap from designing programs and services to developing and implementing public policies. Further research and evaluation is needed to strengthen our understanding of what *co-design for policy* entails in practice, as well as if, and how, it achieves any of these benefits for participants, policymakers and the people they serve.

Note

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PART 2

Policy Problems and Policy Design

Linking Problems and Targets

5

POLICY INSTRUMENTS AND POLICY DESIGN CHOICES

Selecting Substantive and Procedural Tools in Public Policymaking

Michael Howlett

Introduction: Policy Design Studies and Policy Instrument Analyses

In policy studies, a focus on linking policy tools to pressing policy problems defines a 'design' orientation to the subject. Choosing which policy instruments to use to address public problems is an important topic of enquiry across a variety of areas. In a time when policymakers are increasingly asked to put forth innovative solutions to complex policy issues such as climate change and poverty or homelessness, for example, it is urgent to better understand the instruments of governance and how they can be designed.

The design approach has developed into a fully fledged field of policy studies with its own concerns for accurately classifying and analyzing the strengths and weaknesses of different tools, used both alone and in combination (Salamon, 1989, 2002a, 2002b; Hood, 1986, 2007). This 'design' approach to policy studies has its own dynamic and relationship to policy practice. Hence, for example, while the globalization 'turn' of the 1990s favored the use of market and network-based tools, often at the cost of a systematic analysis of state-society relationships and capacities, the 2000s witnessed a reinvigorated focus on policy design and the knowledge-informed study of the substance and formulation processes of policy instruments (Howlett and Lejano, 2013).

This approach now focuses both on traditional 'substantive' tools of policymaking, such as regulation and public ownership, and on 'procedural' tools tied to the design and implementation of public participation and other activities only indirectly linked to both goods and service delivery, such as the design of advisory committees to regulatory agencies; to policy processes more generally, such as the design of public hearings, websites, judicial review processes and others (Howlett, 2011; Fung, 2003; McNutt, 2014); and to how they are mixed together in policy bundles or portfolios (Howlett, 2004; Flanagan et al., 2011). This chapter looks at both kinds of tools and how they can be combined and draws lessons for practitioners from the work of scholars on these subjects over the past several decades.

Substantive and Procedural Tools: Affecting Goods and Services Production and Consumption, and Managing Policymaking Processes

Early students of policymaking had very flexible notions of the multiple means by which governments can affect, or give effect to, policy (Dahl and Lindblom, 1953; Kirschen et al., 1964; Edelman, 1964; Lowi, 1966). In these early works, 'policy instruments' were defined broadly so as to include a wide range of tools or techniques of governance, including those substantive instruments used to actually deliver goods and services and those directed at affecting policy development. In his pathbreaking early works on public policymaking, for example, Harold Lasswell conceived of the main instruments of politics as involving, among other things, the manipulation of symbols, signs and icons, and noted the extent to which manipulation of these instruments by governments could affect each stage of the policy process (Lasswell, 1954, 1971; Doern and Phidd, 1988; Doern and Wilson, 1974a. 1974b).

By the early 1980s, under the urgings of Lester Salamon and others, attention began to be focused on more precisely categorizing policy instruments in order to better analyze the reasons for their use (Salamon, 1981). Scholars argued that careful examination of instruments and instrument choices would not only lead to considerable insight into the factors driving the policy process and the characterization of long-term patterns of public policymaking, but would also allow practitioners to more readily draw lessons from the experiences of others with the use of particular techniques in specific circumstances (Woodside, 1986).

These studies generated a large academic literature and resulted in immediate application in the design of new, substantive policy initiatives in areas such as pollution prevention and professional regulation (Hippes, 1988; Trebilcock, 1983). Studies generated useful taxonomies (Tupper and Doern, 1981; Hood, 1986; Vedung, 1997; Howlett, 1991) and shed light on significant subjects, such as the reasons behind shifts in patterns of instrument choices associated with the waves of privatization and deregulation that characterized the period (Howlett and Ramesh, 1993).

Many of these studies, however, looked at instances of single instrument selection in trying to discern the reasons why governments would choose one category of instrument over another. These studies, heavily influenced by economists, also tended to focus on what have been termed 'substantive' instruments, that is, those such as classical command and control regulation or public enterprises, or subsidies that more or less directly affected the type, quantity, price or other characteristic of goods and services being produced in society, by either the public or private sector (Salamon, 1989; Bemelmans-Videc, 1998; Peters and van Nispen, 1998).

Analysts of this period paid much less attention to the systematic analysis of policy mixes or to 'procedural' tools—that is, tools that affect the delivery of goods and services by governments only indirectly, and focus instead on altering aspects of policymaking processes (Howlett, 2000; Hood, 1995, 1991; Dunleavy and Hood, 1994; Riker, 1986, 1983; Dunsire, 1981, 1986, 1993a, 1993b). Since then, however, these defects have been corrected. Knowledge of these types of instruments, their effects and the reasons behind their choices, both singly and in mixes, is now very much a part of policy design studies (Howlett, 2014; Howlett et al., 2015).

Basic Taxonomies of Substantive and Procedural Policy Instruments

The analysis of specific policy instruments flourished through the 1970s and 1980s within specific sectors such as environmental and social policy, as well as through cross-sectoral efforts to better understand policy functions. Many authors proposed various instrument taxonomies to

"produce parsimonious and comprehensive or generic classifications that allowed comparisons across time, area, and policy domain" (Hood, 2007, p. 129; Varone, 1998, 2001).

In the case of substantive policy instruments utilized to affect the nature of societal and economic activities, many authors have provided taxonomies or categorization schemes. One of the most well-known was developed by Christopher Hood (1986, but see also Anderson 1977). In this scheme, instruments are grouped together according to whether they rely upon the use of 'nodality' (or information), authority, treasure or the organizational resources of government for their effectiveness, and whether the instrument is designed to effect a change in a policy environment or detect changes in it. A taxonomy of substantive policy instruments based on Hood's schema is presented in Figure 5.1.

The aim of such taxonomical work was not only better description but better prescription. In order to accomplish this, many analysts also proposed various schemes that established the relationship between different instruments or categories of instruments and the successful attainment of government objectives (Doern and Aucoin, 1971; Doern and Wilson, 1974a, 1974b; Tupper and Doern, 1981).

Howlett and Ramesh (1995), for example, developed a spectrum of substantive instruments based on Hood's taxonomy (see also Baxter-Moore, 1987). They focused on the level of direct state involvement in the provision of goods and services as the chief criterion for distinguishing between categories of 'effector' instruments. This placed 'voluntary' instruments requiring minimal state involvement at one end of a continuum and state-based instruments such as public enterprises at the opposite end. Between the two poles lie a wide range of 'mixed' instruments involving varying levels of state and private provision of goods and services (Figure 5.2), with the idea that governments 'moved up the scale' of state provision as needed when private or societal actors failed to produce the quantity or quality of a good or service demanded by citizens.

Principal Governing Resource Used				
	Nodality	*Authority*	*Treasure*	*Organization*
Effectors	Advice Training	Regulation User charges Licenses	Grants Loans Tax expenditures	Bureaucratic administration Public enterprises
General Purpose of Instrument Use				
Detectors	Reporting Registration	Census-taking Consultants	Polling Police reporting	Record-keeping Data storage

Figure 5.1 A Taxonomy of Substantive Policy Instruments (*cells provide examples of instruments in each category*)

Source: Howlett (2000).

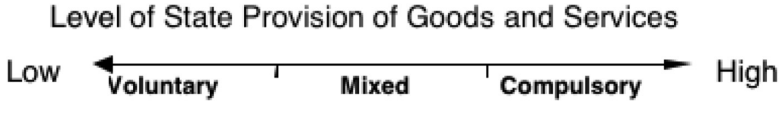

Figure 5.2 A Spectrum of Substantive Policy Instruments

Source: Modified from M. Howlett and M. Ramesh, *Studying Public Policy: Policy Cycles and Policy Subsystems* (Toronto: Oxford University Press, 1995).

While the content and implementation of substantive policy instruments—those that are aimed at the delivery of certain goods and services to society—continue to occupy the interest of many policy scholars and practitioners alike, the study of procedural tools—those that govern state-society relations and affect the support for and participation of actors in government initiatives—has gained more attention as large, inter-organizational networks of policy actors proliferated in many countries and jurisdictions in the 1980s and 1990s. This occurred as many traditional public administration activities were delegated to private, non- or quasi-governmental organizations through processes such as co-production and privatization (Pestoff et al., 2013; Delacourt and Lenihan, 2000; Donahue, 1989; Brudney, 1987), inspiring a renewed state interest in the procedural tools required to manage them (Klijn, 1996; Howlett, 2000).

The focus of procedural instruments is on altering political or policy behavior in the course of defining policy goals and the means to attain them, and in the implementation of policy goals (de Bruijn and ten Heuvelhof, 1991). Multiple actors are typically involved in policymaking, and specific ones can often heavily influence policy deliberations and outcomes (Klijn and Teisman, 1998). Furthermore, there can be varying degrees of overlap between state, non-state and international actors in the process of designing policy mixes, as actors take on roles of policy principals, entrepreneurs, targets, implementation agents and beneficiaries (Flanagan et al., 2011). Consumers of policy designs can themselves be instrumental in the formulation process (Schneider and Ingram, 2005; Schneider and Sidney, 2009). This can occur 'naturally' or accidently but can also be 'designed' by governments through the use of procedural tools designed to enhance or curtail specific kinds of activities by specific sets of actors. That is, controlling the interactions and activities of different policy actors can affect their behavior in developing and choosing policy solutions (Thatcher and Rein, 2004).

Some examples of procedural policy instruments include a government's formation of an advisory committee to aid regulatory policy formulation and legitimize its outcomes (Saward, 1992). Such a committee might be structured so as to include selected experts and citizens expected to support a government's position in contentious issue areas such as the development of public housing or the regulation of chemical substances.

Other such tools involve the creation of right-to-information legislation—or their reverse, Official Secrets Acts—that makes it easier or more difficult for citizens to gain access to governments records, information and documents and thus helps or hinders their ability to comment intelligently on government plans and initiatives. Yet another example of such a tool is the reorganization of the government's own internal structure, as this can have an impact on policymaking by altering the venues and images of policymaking. This occurs, for example, when environmental departments are merged with natural resource administrations, requiring the two to take on some new form of operating arrangements, potentially diminishing regard for one if it is subsumed in the other.

This research helped distinguish a large number of standard policy instruments that are procedurally oriented. These include education, training, institution creation, the selective provision of information, formal evaluations, hearings and institutional reform. 'Treaties' and political agreements constitute yet another family of intergovernmental regulatory mechanisms that can have an impact on target community perceptions of government actions and vice versa. Such research has highlighted the existence of tools related to group creation and manipulation, including the role played by private- or public-sector patrons in aiding the formation and activities of such groups and the use of techniques such as provision of research funding for, and access to, investigative hearings and tribunals (Howlett, 2000).

Hood's classification rubric can also be applied to procedural tools. It allows for a useful categorization of both substantive and procedural instruments and has since been foundational to

instrument studies that have extended the rubric to procedural tools governing public behavior and participation in the policy process. Specifically, Hood's logic can be used to distinguish between eight different kinds of procedural tools, depending on the resource they utilize for their effectiveness and whether they are intended to either enhance or diminish an actor's participation in policymaking (Figure 5.3).

While this taxonomy allows for a wide variety of procedural instruments to be organized under broad resource-based categories, as with the better-known substantive tools, classification is only the first step in the process of developing a model of procedural instrument choice (McKelvey, 1978). A second step involves explaining why one instrument would be chosen in a specific situation rather than another. Understanding the reasons these tools are used requires a clear understanding of the behavioral aspects of civic society actors and other 'targets' of these techniques of governance.

Procedural policy tools can be positioned on a continuum according to the level of state manipulation of the membership and activities of policy actors within a policy network they involve. In this continuum (Figure 5.4), procedural tools can be arrayed based on whether government activity results in limited manipulation—aimed at mildly impacting policy actor behavior or participation through 'voluntaristic' responses from target groups on one end—to major institutional changes meant to completely rearrange existing subsystem components by mandatory means (Howlett, 2000). All of these situations involve public participation but do so at different levels of intensity and effort.

Principal Governing Resource Used				
General Purpose of Instrument Use:	*Nodality/ Information*	*Authority*	*Treasure*	*Organization*
Positive	Education, information provision, focus groups, 'nudges'	Labeling, treaties and political agreements, advisory group creation	Interest group creation, intervenor and research funding	Institutional reform, judicial review, conferences, co-production and co-creation
Negative	Propaganda, information suppression, denial of access	Banning groups and associations	Eliminating funding	Administrative delay and obfuscation

Figure 5.3 A Resource-Based Taxonomy of Procedural Policy Tools (*cells provide examples of instruments in each category*)

Source: Howlett (2000).

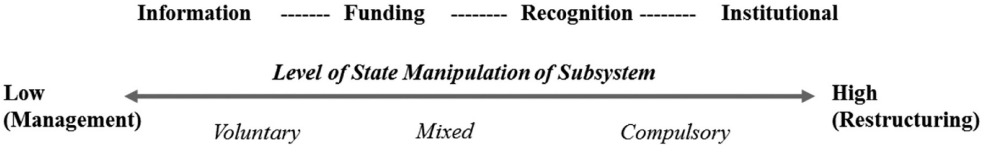

Figure 5.4 A Spectrum of Procedural Policy Instruments

Source: Howlett (2000)

Procedural tools in this sense can be seen as techniques of network management that handle the participation of multiple actors in policy activities (Goldsmith and Eggers, 2004; Klijn and Koppenjan (2000, 2006). They are aimed at altering and improving policy interaction, but, as Klijn et al. (1995) note, they do so indirectly by structuring interactions without determining their outcome (p. 441).

Procedural tools affect the management of different actors in the policy network by:

- Changing and setting down actor positions in the policy network;
- Adding or removing actors to and from a network;
- Changing the rules for actors to access the policy network;
- Influencing network formation;
- Changing evaluative criteria used by actors;
- Influencing the pay-off structure for actors;
- Influencing professional and other codes of conduct and behavior;
- Regulating inter-actor conflict and changing procedures of interaction;
- Certifying certain types of behavior within the network; and
- Changing supervisory relations between actors.

The impact of the deployment of such tools to affect actor participation in policy networks can range from minor alteration of network actor behavior to more deep-seated and overarching restructuring of entire policy subsystems.

Policy Mixes

Theories of policy instrument choice have gone through several 'generations' (Goggin et al., 1990; O'Toole, 2000) as theorists have moved from the analysis of individual instruments (Salamon, 1981, 2002a, 2002b) to comparative studies of instrument selection (Howlett; 1991; Bemelmans-Videc et al., 1998; Peters and Van Nispen, 1998; Varone, 2000) and the development of theories of instrument choice (Trebilcock et al., 1982; Hood, 1986; Linder and Peters, 1989).

In this evolution, theorists and practitioners have moved well beyond simple dichotomous zero-sum notions of instrument alternatives—like 'market vs. state' or 'carrot vs. stick'—which characterized earlier studies (Howlett, 2004). Theorists, administrators and politicians have expanded the menu of government choice to include both substantive and procedural instruments and a wider range of options of each, and to understand the important context-based nature of instrument choices (Howlett, 2000). 'Next generation' instrument choice theory has now moved beyond tool selection alone to address a series of concerns involved in designing and adopting optimal 'mixes' of instruments in complex decision-making and implementation contexts (Bressers and O'Toole, 2005; Eliadis et al., 2005).

Current 'next generation' theory on policy instruments, such as that owing its origins to Gunningham's work on 'Smart Regulation,' centers on the question of the 'optimality' (Gunningham, 1998; Grabosky, 1995; Howlett and Rayner, 2004; Campbell et al., 2004) or 'coherence' of instrument mixes (May et al., 2005; Bressers et al., 2004; Grabosky, 1994; Gunningham and Young, 1997). This latter work represents an effort to correct many of the flaws of first generation thinking and to correct the disjuncture between administrative practice and instrument analysis that that work contained.

A very important difference between early and later instrument work concerns the fact that while early students of instrument choices focused on decisions to adopt individual instruments,

administrative practice usually involves the use of multiple tools in policy instrument mixes (Gunningham et al., 1998; Gunningham and Sinclair, 1999; Gunningham and Young, 1997). The nature of these mixes or 'governance strategies' remains understudied, however, and questions about appropriate instrument choices remains much less well understood than are choices to select specific types of instruments in abstract or relatively simple situations (Eliadis et al., 2005).

Moving from a focus on single instruments, analysts look instead at complementarities and conflicts within instrument mixes and adopt a much more flexible and less Manichean view of instrument use. This work has come to focus on a small number of key precepts that embody current thinking about instrument use:

1. Designing policies that employ a mix of policy instruments carefully chosen to create positive interactions with each other and to respond to particular, context-dependent features of the policy sector.
2. Considering the full range of policy instruments when designing the mix rather than assuming that a choice must be made between regulation and markets.
3. Continuing pressure on governments to do more with less, to suggest the increased use of 'alternative' tools such as incentive-based instruments, various forms of self-regulation by industry, and policies that can employ commercial and non-commercial third parties to achieve compliance, such as suppliers, customers and a growing cast of auditors and certifiers.
4. Finally, searching for new network-appropriate procedural policy instruments such as information instruments, and various techniques of network management such as the use of advisory committees and public consultations, which are seen as particularly important to meet the challenges of governance.

(Howlett and Rayner, 2004)

Conclusion and Future Research Directions

As this discussion has shown, policy instruments are a critical component of policy designs and different classes or types of tools or instruments are used to manipulate goods and service delivery in society as well as to affect policy processes. Procedural tools are distinct from those with a more substantive aim to deliver policy goods and services, although they exhibit many of the same dynamics and can be analyzed by analogy to the more commonly studied and investigated set of instruments.

The class of procedural policy tools has not garnered as much research attention as substantive tools in modern policy studies, although improvements have been made in this regard over the last couple of decades. This allows us to highlight the nature of these tools and how they differ from one another in terms of resource use and impact, as well as to hypothesize about why they are selected and how they relate to each other in policy mixes.

Ongoing and future research work in this area of policy studies is now focused on understanding not only how these different instruments work individually, but how they interact and work together in complex policy mixes to address complex policy problems (Figureau et al., 2015) and how cognitive and behavioral aspects of policymakers lead them to favor one design over another. This work explores both choices made at a single moment in time and over a period of years or decades (Considine, 2012; Considine et al., 2013; Hughes and Urpelainen, 2015). Research in these areas will continue to shed light on the use of these kinds of policy tools and their impact, as well as the reasons for their selection in policy designs.

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6

PERSUASIVE SYSTEMS DESIGN

Key Issues, Process Model and System Features[1]

Harri Oinas-Kukkonen and Marja Harjumaa

Introduction

Interactive information technology designed for changing users' attitudes or behavior is known as persuasive technology (Fogg 2003). Traditionally, persuasion has meant "human communication designed to influence the autonomous judgments and actions of others" (Simons et al. 2001, p. 7). The Web, Internet, mobile and other ambient technologies create opportunities for persuasive interaction, because users can be reached easily. In addition, the Web and other Internet-based systems are optimal for persuasive communication, because they are able to combine the positive attributes of interpersonal and mass communication (Cassell et al. 1998). There are certain areas where persuasive technology could be especially useful. For example, healthcare software applications may be developed to motivate people toward healthy behavior and thereby possibly delay or even prevent medical problems as well as ease the economic situation in public healthcare (Intille 2003; Kraft et al. 2009).

Persuasive systems may be defined as "computerized software or information systems designed to reinforce, change or shape attitudes or behaviors or both without using coercion or deception" (Oinas-Kukkonen and Harjumaa 2008, p. 202). In this definition, there are three potential successful outcomes for a persuasive system: the voluntary *reinforcement*, *change* or *shaping* of attitudes and/or behaviors. A reinforcing outcome means the reinforcement of current attitudes or behaviors, making them more resistant to change. A changing outcome means changes in a person's response to an issue, e.g. to social questions. A shaping outcome means the formulation of a pattern for a situation when one does not exist beforehand. In many cases, communication that results in a shaping outcome may have a higher likelihood of success than communication that aims at a changing outcome (Lerbinger 1972). Moreover, different goals may imply the use of differing persuasion strategies and techniques.

Persuasive systems may utilize either computer-human persuasion or computer-mediated persuasion (Oinas- Kukkonen and Harjumaa 2008). Admittedly, the concept of a persuader is relatively complex with computer-human persuasion. As computers do not have intentions of their own, those who create, distribute or adopt the technology are the ones who have the intention to affect one's attitudes or behavior (Fogg 1998). Although computers cannot communicate in the same way as humans, there are studies that suggest that computer-human persuasion may utilize some patterns of interaction similar to social communication (Nass et al. 1994; Fogg and Nass 1997), whereas

computer-mediated persuasion means that people are persuading others through computers, e.g. discussion forums, e-mail, instant messages, blogs or social network systems.

Despite the fact that attitudinal theories from social psychology have been quite extensively applied to the study of user intentions and behavior, these theories have been developed for predicting user acceptance of the information technology rather than for providing systematic analysis and design methods to develop persuasive software solutions. The widely utilized framework developed by Fogg (2003) provides a useful means for understanding persuasive technology. However, it seems to be too limited to be applied directly to persuasive system development and/or evaluation (Harjumaa and Oinas-Kukkonen 2007). This chapter, in spite of being conceptual and theory-creating by its nature, aims at discussing the process of developing and evaluating persuasive systems as well as describing what kind of content and software functionality may be found at the final product. The framework suggested in this chapter, the Persuasive Systems Design (PSD) model, is based upon our empirical work and conceptual analysis as well as other research.

The development of persuasive systems consists of three steps (see Figure 6.1 for an illustration of the development process). First, it is crucial to understand the fundamental issues behind persuasive systems before implementing the system. Only after obtaining a reasonable level of this understanding can the system be analyzed and designed. At the second phase, the context for persuasive systems needs to be analyzed, recognizing the intent, event and strategies for the use of a persuasive system. Finally, actual system qualities for a new information system may be designed or the features of an existing system may be evaluated.

These steps provide the structure for this chapter. "Key Issues Behind Persuasive Systems" will define the underlying assumptions behind persuasive systems. "Persuasion Context" will discuss how the persuasion context may be analyzed. "Design of System Features"will define and describe various techniques for designing the content and functionality of a persuasive system. The penultimate section will provide an example of how to use the framework. The final section will provide the conclusions of the chapter.

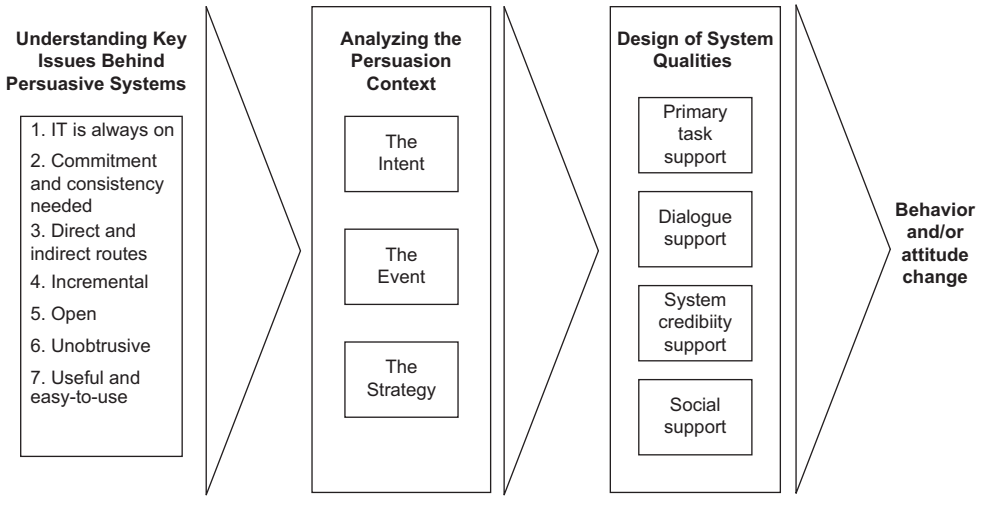

Figure 6.1 Phases in Persuasive Systems Development

Key Issues Behind Persuasive Systems

Based upon our empirical work and conceptual analysis, as well as other research, we define seven postulates that need to be addressed when designing or evaluating persuasive systems. Two of these postulates relate to how we see the users in general, two relate to persuasion strategies and three address actual system features (see Table 6.1 for a summary of the postulates).

Our first postulate is that *information technology is never neutral*. Rather, it is 'always on,' influencing people's attitudes and behavior in one way or another. Moreover, people are constantly being persuaded in a manner similar to how teachers persuade students in schools, and there is nothing bad in it in itself. This also means that persuasion may be considered as a process rather than as a single act. Persuading a user is a multi-phased and complex task, and different factors, such as the user's goal, may change during the process. For instance, at the beginning of using a pedometer, a user might simply be interested in the number of steps taken, but after using the device for a while (s)he may become more interested in burning calories. Persuasive systems should be able to adapt to these kinds of changes.

The second postulate is that *people like their views about the world to be organized and consistent*. This is based on the idea of commitment and cognitive consistency (Cialdini et al. 1981). If systems support the making of commitments, users will more likely be persuaded. For example, a user may express greater confidence in his or her decision to exercise regularly after having bought a gym membership card. The idea of commitment also implies that persuasive systems could provide means to make private or public commitments to performing the target behavior. This can be implemented, for example, by offering an easy way to send a text message or email to one's relatives, friends or colleagues.

Cognitive consistency becomes important, because inconsistency may motivate attitude change (Simons et al. 2001). Psychological inconsistency disturbs people, and they easily want to reorganize their thinking and restore consistency and perhaps even feel obliged to do so. Inconsistency may exist between attitudes and behavior, attitudes toward other people, attitudes toward objects and other people's attitudes toward the same objects (Simons et al. 2001). The inconsistency must be represented and brought to the attention of the receiver. If a person finds the inconsistency unpleasant, (s)he will accept personal responsibility for it, and then cognitive dissonance will occur. The dissonance has to be powerful enough, however, to motivate the person to engage in an attitude or behavior change in order to restore cognitive consistency (Fraser et al. 2001). The idea of cognitive consistency, admittedly, is subject to criticism. Philosophically, people are not fully consistent in their actions and have to deal with minor inconsistencies every day. People also have to feel commitment before inconsistency creates dissonance. For example, if one feels that (s)he could reverse a decision at any time, (s)he is unlikely to experience dissonance.

Table 6.1 Postulates Behind Persuasive Systems

1. Information technology is never neutral.
2. People like their views about the world to be organized and consistent.
3. Direct and indirect routes are key persuasion strategies.
4. Persuasion is often incremental.
5. Persuasion through persuasive systems should always be open.
6. Persuasive systems should aim at unobtrusiveness.
7. Persuasive systems should aim at being both useful and easy to use.

Furthermore, in many cases, if one believes that (s)he has no other choice but to behave inconsistently, (s)he may live with the dissonance. Still, the idea of cognitive consistency can be used in persuasive designs in many ways, for example by offering information to a user that is inconsistent with his or her thinking. Should the behavior change, it will cause an inconsistency between one's attitudes and one's behavior, and after a while (s)he may change his or her attitudes to better correspond with the behavior.

The third postulate states that *direct and indirect routes are key persuasion strategies* (Oinas-Kukkonen and Harjumaa 2008). An individual who carefully evaluates the content of the persuasive message may be approached by the direct route, whereas an individual who is less thoughtful and uses simple cues or stereotypes for evaluating the information may be persuaded through the indirect route. Direct and indirect processes may act simultaneously, and both strategies may be supported through numerous software system features. Direct persuasion has turned out to be the more enduring of the two (McGuire 1973; Petty and Cacioppo 1986). However, in the era of information overflow, people are often forced to use indirect cues more often than before because of the abundance of information to be handled. When an individual sees relevant cues, heuristics are triggered. These may also be called *cognitive shorthands*, shortcuts or rules of thumb. Heuristics are normally derived from experience and may have some empirical validity. Heuristics are often socially shared, but in practice a heuristic is available only if there is a stored representation of it in one's memory (Todorov et al. 2002). This postulate implies that a user's personal background and the use situation have an influence on his or her information processing. When the user has a high motivation and a high ability, (s)he is more likely interested in the content of the persuasive message than when (s)he has a low motivation and a low ability. In challenging situations, such as being in a hurry, it is highly likely that one will use heuristics for processing the information.

The fourth postulate states that *persuasion is often incremental*. In other words, it is easier to initiate people into doing a series of actions through incremental suggestions rather than a one-time consolidated suggestion (Mathew 2005). This implies that a persuasive system should enable making incremental steps toward target behavior. For example, an application for healthier eating habits could first encourage users to eat at least some vegetables at their meals, whereas the system could later suggest filling half of the plate with vegetables. Oftentimes, a system should also encourage users to make an immediate decision rather than postponing it for a later occasion. For example, Web sites for alcoholics could first provide stories from people who have suffered bad consequences, such as memory problems or brain damage, because of alcohol abuse and then encourage the user to make or keep a firm decision to abstain from alcohol use. From the ethical point of view, it is necessary that the overall goal is made clear at all steps of incremental persuasion.

The fifth postulate is that *persuasion through persuasive systems should always be open*. It is very important to reveal the designer bias behind of the persuasive system. For instance, simulations may bear great persuasive power, but if the designer bias remains unclear for the users, the simulations may either lose some of their persuasiveness or they may end up misleading their users. Moreover, content that is based on untruthful or false information does not fit with the overall goal of users voluntarily changing attitudes or behaviors.

The sixth postulate states that *persuasive systems should aim at unobtrusiveness*, i.e. they should avoid disturbing users while they are performing their primary tasks with the aid of the system. In this manner, the system is capable of fulfilling users' positive expectations. The principle of unobtrusiveness also means that the opportune (or inopportune) moments for a given situation should be carefully considered. The use of persuasive features at improper moments, e.g. a heart rate monitor suggesting one to exercise when being sick or getting a reminder to take medication for high blood pressure while giving a presentation at a meeting, may result in undesirable outcomes.

According to the seventh postulate, *persuasive systems should aim at being both useful and easy to use*, i.e. at really serving the needs of the user. This includes a multitude of components, such as responsiveness, ease of access, lack of errors, convenience and high information quality, as well as positive user experience, attractiveness and user loyalty. Quite understandably, if a system is useless or difficult to use, it is unlikely that it could be very persuasive. It should be noted, however, that the abovementioned aspects are general software qualities and not specific to persuasive systems only.

Persuasion Context

Analyzing the persuasion context requires a thorough understanding of what happens in the information processing event, namely understanding the roles of persuader, persuadee, message, channel and the larger context (Oinas- Kukkonen and Harjumaa 2008). Persuasive communication produces a complicated psychological event in a person's mind. Basically, the one being persuaded (persuadee), that is the user, is a human information processor (McGuire 1973). This information processing view emphasizes the role of attention and comprehension in the persuasion process. In order for a person to be persuaded, information must be presented and the persuadee must pay attention to the argument(s) presented and comprehend it. After this, the persuadee often yields to the position presented and retains it (at least for some time), but in a successful persuasion, the persuadee takes action to comply with the new position (McGuire 1973).

In some cases, it is more fruitful to explain the persuasion context through the idea of cognitive consistency. This view differs from the one proposed by McGuire (1973), because he regards the cognitive consistency theory and the information processing approach as mutually exclusive. The idea of cognitive consistency implies that sometimes behavior change may be possible without systematically going through all information processing phases. Nevertheless, persuasion-in-full occurs only when attitude change takes place. Changing a previous attitude is harder than originating or reinforcing an attitude. Furthermore, if a user's existing attitudes are based on his/her personal experience (sometimes learned through a long socialization process), they are harder to change. In contrast, if a user's existing attitudes are recently learned from other people, they are easier to change (Lerbinger 1972).

Without carefully analyzing the persuasion context, it will be hard or even impossible to recognize inconsistencies in a user's thinking, discern opportune and/or inopportune moments for delivering messages and effectively persuade. This context analysis includes recognizing the intent of the persuasion, understanding the persuasion event and defining and/or recognizing the strategies in use (see Figure 6.2).

The Intent

A serious consideration is needed to determine who is the *persuader*. As computers do not have intentions of their own, those who create, distribute or adopt the technology have the intention to affect someone's attitudes or behavior. Fogg (1998) has recognized three different sources of intentions: those who create or produce the interactive technology (endogenous); those who give access to or distribute the interactive technology to others (exogenous); and the very person adopting or using the interactive technology (autogenous). Autogenous technologies that people use to change their own attitudes or behaviors should emphasize that the user experience is rewarding enough for users to keep using the technology regularly over an extended period of time (Nawyn et al. 2006). Exogenous technologies should provide means to personalize the assigned goals, because their effects are mediated by self-set goals that people choose in response

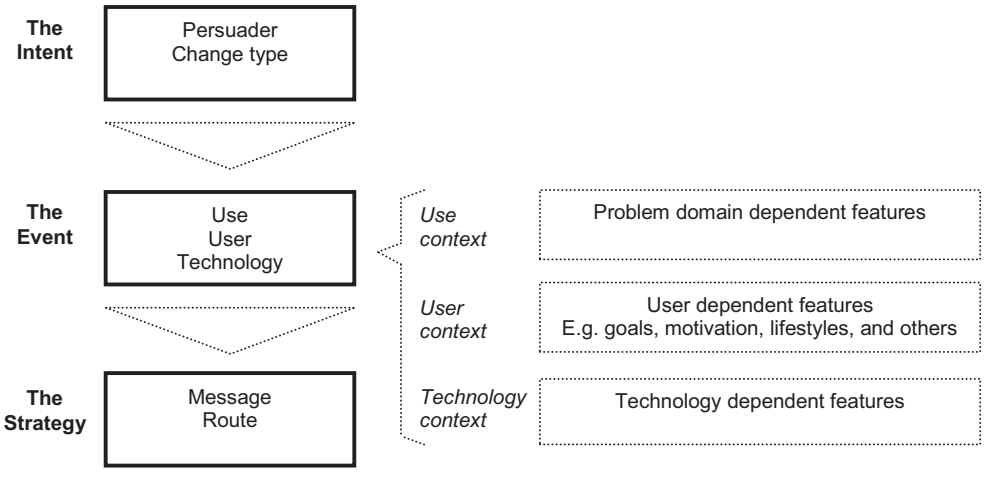

Figure 6.2 Analyzing the Persuasion Context

to the assignment, even in organizational settings (Locke and Latham 2002). Endogenous technologies should always be designed with respect to users' voluntariness toward attitude or behavior change. They should reveal the designer bias behind the system (cf. the fifth postulate in "Key Issues Behind Persuasive Systems" of this chapter).

A central feature of analyzing the intent is to consider the *change type*, in particular whether the persuasion aims at *attitude* and/or *behavior change*. One-time behavior change may be achieved more easily, whereas permanent behavior change is much more difficult. An attitude change that directs behavior may be the most difficult to achieve. Attitudes can vary in many ways. They may be based on emotions, beliefs or past experiences and behaviors, and they may be internally consistent or ambivalent (Petty and Wegener 1998). Attitude change means that a person's evaluation is modified from one value to another. In our view, attitudes do not always predict or determine behavior. It is also possible to affect users' behavior with a persuasive system even if their attitudes toward the behavior are not favorable. This is supported by the theory of cognitive consistency. This theory suggests that one can often proceed more efficiently from behavior to attitudes (McGuire 1973). If the behavior changes first, for example by legal constraints, it may be expected that the attitude change will follow.

There are also other theories that suggest that certain rules or conditions can be defined under which attitudes predict behavior. For instance, the theory of reasoned action, which aims at explaining volitional behavior, suggests that the strongest predictor of behavior is one's intention towards it (Fishbein and Ajzen 1975). Intentions are a function of attitudes toward modes of behavior and subjective norms. Thus, this theory suggests that a person's attitudes toward behavior and subjective norms indicate how that person will behave in a situation. The attitude toward the behavior and subjective norms are the key elements in attitude change, because in order to change the behavior, the intention to perform that behavior should be influenced. These elements can be changed most effectively by influencing primary beliefs (Fishbein and Ajzen 1975). The theory of reasoned action is widely used in information systems research for predicting user intentions and user behavior. Davis (1989) has employed it to create the widely used individual human technology acceptance model.

The Event

A central facet analyzing the persuasion event is to consider the *use context*, in particular, the features arising from the problem domain. For instance, many persuasive systems have been developed for promoting health and wellbeing. It is characteristic of these applications that users often have the necessary information to act and, in many cases, they even have the proper attitudes, but they have problems in behaving in line with them. Bad habits or inappropriate behaviors have often been learned over a long period of time. For instance, addiction, whether physical, emotional or social, may be a result of lengthy or heavy use of alcohol, nicotine or other substances. In these cases, persuasive systems should aim at reinforcing proper attitudes and making them easier to stick with even in challenging, spontaneous situations.

In parallel with understanding the use context, the *user context* also needs to be analyzed. People have individual differences that influence their information processing. For example, some people have a high need for cognition, whereas some have a low need for cognition. This is based on an individual's tendency to engage in and enjoy effortful cognitive endeavors (Cacioppo and Petty 1984). A user's need for cognition has an influence on the persuasion strategy that will be successful. People who have a high need for cognition tend to follow the direct route to persuasion (Petty and Wegener 1998). In addition to relatively straightforward information processing situations, such as learning, users may be approached through larger contexts in their lives, such as a middle-age crisis or the loss of a loved one. While use analysis basically only focuses on the question of what information is relevant for a user in a given situation, the user may be approached in a more holistic manner as well. This context analysis in- the-large means analyzing a user's interests, needs, goals, motivations, abilities, pre-existing attitudes, commitment, consistency, compromises, life styles, persistence of change, cultural factors, deep-seated attitudes, social anchors and perhaps even the whole personality.

One of the most essential facets of analyzing the user context is understanding the user's goals, including current progress toward achieving them and, potentially, past performance. Users' goals and intentions can be studied from various perspectives. In their theory of reasoned action, Fishbein and Ajzen (1975) have discussed discrete intentions to take specific actions. In their theory of goal setting, Locke and Latham (2002) have focused on the relationship between conscious performance goals and the level of task performance. The goal-setting theory acknowledges the importance of conscious goals and self-efficacy, focusing on the core properties of an effective goal and on the motivation for work settings.

The goal setting theory (Locke and Latham 2002) explains that goals affect performance through directing attention and effort (toward goal-relevant activities and away from goal-irrelevant activities), energizing (high goals lead to greater effort than low goals), persistence (hard goals prolong effort, and tight deadlines lead to more rapid work pace than loose deadlines) and by leading to arousal and/or use of task-relevant knowledge and strategies. This theory states that (a) the highest and most difficult goals produce the highest levels of effort and performance; (b) specific, difficult goals consistently lead to higher performance than urging people to do their best; (c) when goals are self-set, people with high self-efficacy set higher goals than do people with lower self-efficacy; and (d) people with high self-efficacy are also more committed to the assigned goals and to finding and using better task strategies to attain the goals as well as to responding more positively to negative feedback. Thus, when users have the opportunity to set a goal, they will use their pre-existing knowledge and earlier experience more effectively to achieve their goals. Overall, persuasive systems should encourage users to set goals and to discover ways for achieving them in a systematic and effective way. It should be noted, however, that goal specificity in itself does not necessarily lead to high performance.

In computer-human and computer-mediated persuasion, the *technology context* also plays an important role. Information technologies are being developed with a great speed and new technologies become available rapidly. The strengths and weaknesses, as well as the risks and opportunities, of specific technological platforms, applications and features need to be thoroughly understood.

The Strategy

A central feature for defining persuasion strategies is analyzing the *message*. A persuasion situation may be defined as an event in which the persuadee makes optimal compromises among conflicting forces (McGuire 1973). This view has been criticized by Cialdini et al. (1981), because it emphasizes the rational processing of arguments. Nevertheless, this is a relatively large part of the whole picture of persuasion. Because persuasion may also be described as changing the attitudes and/or behavior of others, the persuader is often trying to convince the persuadee of something. Drawing the line between convincing and persuasion is difficult. Persuasion relies primarily on symbolic strategies that trigger the emotions, whereas conviction relies on strategies rooted in logical proof and appeals to persuadees' reason and intelligence (Miller 2002).

The second central question in defining persuasion strategies is considering the proper *route* to be used in reaching the user, in particular whether to choose a *direct or indirect* route for persuasion. Direct and indirect processes may act simultaneously, and both strategies may be supported through numerous software system features. The route selection depends on the user's potential to carefully evaluate the content of the persuasive message. If (s)he is able to do that, a direct route could be used. In many cases, this is advisable because direct persuasion has turned out to be the more enduring of the two (McGuire 1973; Petty and Cacioppo 1986). In these cases, persuasion basically aims at convincing the user by appealing to reason and intelligence. However, in the era of information overflow, people are often forced to use indirect cues more often than before because of the abundance of information to be handled. An individual who is less thoughtful and uses simple cues or stereotypes for evaluating the information may be persuaded through the indirect route. When an individual sees relevant cues, heuristics are triggered.

Design of System Features

Fogg's (2003) functional triad and the design principles presented in it constitute the first and so far most utilized conceptualization of persuasive technology. A weakness of this model is that it does not explain how the suggested design principles can and should be transformed into software requirements and further implemented as actual system features. Yet, to be able to design and evaluate the persuasiveness of a software system, it becomes essential to understand both the information content and the software functionalities. Nevertheless, many of the design principles described below have been adopted and modified from Fogg (2003).

Requirements specification is one of the most important phases in software development. It covers the activities involved in discovering, documenting and maintaining a set of requirements for the computer-based information system that will be designed and developed (Sommerville and Sawyer 1997). Requirements are descriptions of how the system should behave (functional requirements), qualities it must have (nonfunctional requirements) and constraints on the design and development processes (Sommerville and Sawyer 1997; Robertson and Robertson2006). A system's persuasiveness is mostly about system qualities.

The presented postulates already implicitly cover a multitude of aspects that need to be recognized when designing persuasive systems, including responsiveness, error-freeness, ease

of access, ease of use, convenience, information quality, positive user experience, attractiveness, user loyalty and simplicity, to name a few; however, more precise requirements for software qualities will have to be defined to be able to communicate the ideas from idea generators and/or management to software engineers. Similarly, in evaluating persuasive systems, software quality checklists will be needed. The three steps necessary to make an idea become reality are summarized in Figure 6.3.

The categories for persuasive system principles suggested in this chapter are primary task, dialogue, system credibility and social support.

The design principles in the primary task category support the carrying out of the user's primary task. The design principles in this category are reduction, tunneling, tailoring, personalization, self-monitoring, simulation and rehearsal (see Table 6.2).

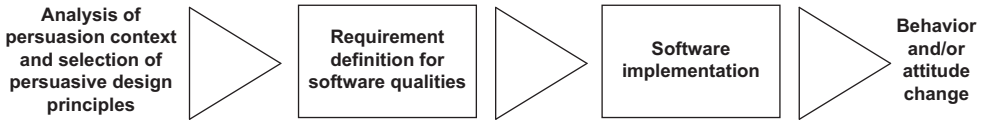

Figure 6.3 Generic Steps in Persuasive System Development

Table 6.2 Primary Task Support

Principle	*Example Requirement*	*Example Implementation*
Reduction A system that reduces complex behavior into simple tasks helps users perform the target behavior, and it may increase the benefit/cost ratio of a behavior.	System should reduce effort that users expend with regard to performing their target behavior.	Mobile application for healthier eating habits lists proper food choices at fast food restaurants (Lee et al. 2006). Smoking cessation Web site provides an interactive test that measures how much money a user will save with quitting.
Tunneling Using the system to guide users through a process or experience provides opportunities to persuade along the way.	System should guide users in the attitude change process by providing means for action that brings them closer to the target behavior.	Smoking cessation Web site offers information about treatment opportunities after a user has taken an interactive test about how addicted (s)he is to tobacco.
Tailoring Information provided by the system will be more persuasive if it is tailored to the potential needs, interests, personality, usage context or other factors relevant to a user group.	System should provide tailored information for its user groups.	Personal trainer Web site provides different information content for different user groups, e.g. beginners and professionals. Web site for recovering alcoholics presents stories that are close to the user's own story.
Personalization A system that offers personalized content or services has a greater capability for persuasion.	System should offer personalized content and services for its users.	Arguments most likely to be relevant for the user presented first on a professional Web site rather than in random order.

(*Continued*)

Table 6.2 (Continued)

Principle	*Example Requirement*	*Example Implementation*
Self-Monitoring A system that keeps track of one's own performance or status supports the user in achieving goals.	System should provide means for users to track their performance or status.	Heart rate monitor presents a user's heart rate and the duration of the exercise. Mobile phone application presents daily step count (Consolvo et al. 2006).
Simulation Systems that provide simulations can persuade by enabling users to observe immediately the link between cause and effect.	System should provide means for observing the link between the cause and effect with regard to users' behavior.	Before and after pictures of people who have lost weight are presented on a Web site.
Rehearsal A system providing means with which to rehearse a behavior can enable people to change their attitudes or behavior in the real world.	System should provide means for rehearsing a target behavior.	A flying simulator to help flight pilots practice for severe weather conditions.

Any interactive system provides some degree of system feedback to its users, potentially via verbal information or other kinds of summaries. There are several design principles related to implementing computer-human dialogue support in a manner that helps users keep moving towards their goal or target behavior. They include praise, rewards, reminders, suggestion, similarity, liking and social role (see Table 6.3).

The design principles in the system credibility category describe how to design a system so that it is more credible and thus more persuasive. The category of system credibility consists of trustworthiness, expertise, surface credibility, real-world feel, authority, third-party endorsements and verifiability (see Table 6.4).

The design principles in the social support category describe how to design the system so that it motivates users by leveraging social influence. The design principles that belong into this category are social facilitation, social comparison, normative influence, social learning, cooperation, competition and recognition (see Table 6.5).

Even if the design principles in the primary task support category are based on the works of Fogg (2003), there are also many differences from them. The key benefit of suggestion is meaningful content for the user rather than providing support for carrying out a process or making a task simpler to do. For this reason, it is tackled in the dialogue support category. In our view, surveillance and conditioning are not acceptable means for persuasive systems. Oftentimes people cannot choose whether they may be observed or not, which easily leads to covert approaches. In a similar manner, operant conditioning oftentimes is not open. Moreover, we also think that users act more or less rationally in how they form and modify attitudes on the basis of beliefs and values rather than performing behavior as a result of conditioning.

The design principles related to dialogue support are partly adopted from Fogg's ideas on social actors (attractiveness, similarity and praise) and media (virtual rewards). Reminders and social role suggest new design principles, whereas the idea of reciprocity was excluded from this framework because it is a characteristic of a user rather than a system feature.

Table 6.3 Dialogue Support

Principle	*Example Requirement*	*Example Implementation*
Praise By offering praise, a system can make users more open to persuasion.	System should use praise via words, images, symbols or sounds as a way to provide user feedback information based on his/her behaviors.	Mobile application that aims at motivating teenagers to exercise praises user by sending automated text-messages for reaching individual goals (Toscos et al. 2006).
Rewards Systems that reward target behaviors may have great persuasive powers.	System should provide virtual rewards for users in order to give credit for performing the target behavior.	Heart rate monitor gives users a virtual trophy if they follow their fitness program. Game rewards users by altering media items, such as sounds, background skin or a user's avatar according to user's performance (Sohn and Lee 2007).
Reminders If a system reminds users of their target behavior, the users will more likely achieve their goals.	System should remind users of their target behavior during the use of the system.	Caloric balance monitoring application sends text-messages to its users as daily reminders (Lee et al. 2006).
Suggestion Systems offering fitting suggestions will have greater persuasive powers.	System should suggest that users carry out behaviors during the system use process.	Application for healthier eating habits suggests that children eat fruits instead of candy at snack time.
Similarity People are more readily persuaded through systems that remind them of themselves in some meaningful way.	System should imitate its users in some specific way.	Slang names are used in an application that aims at motivating teenagers to exercise (Toscos et al. 2006).
Liking A system that is visually attractive for its users is likely to be more persuasive.	System should have a look and feel that appeals to its users.	Web site that aims at encouraging children to take care of their pets properly has pictures of cute animals.
Social Role If a system adopts a social role, users will more likely use it for persuasive purposes.	System should adopt a social role.	E-health application has a virtual specialist to support communication between users and health specialists (Silva et al. 2006).

The differences between the design principles in the system credibility category and the functional triad are that this category excludes the system fulfilling users' positive expectations as well as the ideas of responsiveness, ease-of-use and error-freeness, because they belong to the postulates. Because personalization is very closely related to tailoring, it can be found at the primary task category. On the other hand, the key benefit of referring to an authority is to increase system credibility in a manner similar to other principles in this category. Presumed credibility,

Table 6.4 System Credibility Support

Principle	*Example Requirement*	*Example Implementation*
Trustworthiness A system that is viewed as trustworthy will have increased powers of persuasion.	System should provide information that is truthful, fair and unbiased.	Company Web site provides information related to its products rather than simply providing biased advertising or marketing information.
Expertise A system that is viewed as incorporating expertise will have increased powers of persuasion.	System should provide information showing knowledge, experience and competence.	Company Web site provides information about their core knowledge base. Mobile application is updated regularly and there are no dangling links or out-of-date information.
Surface Credibility People make initial assessments of the system credibility based on a firsthand inspection.	System should have competent look and feel.	There are only a limited number of, and a logical reason for, ads on a Web site or mobile application.
Real-World Feel A system that highlights people or organization behind its content or services will have more credibility.	System should provide information of the organization and/or actual people behind its content and services.	Company Web site provides possibilities to contact specific people through sending feedback or asking questions.
Authority A system that leverages roles of authority will have enhanced powers of persuasion.	System should refer to people in the role of authority.	Web site quotes an authority, such as a statement by government health office.
Third-party Endorsements Third-party endorsements, especially from well-known and respected sources, boost perceptions on system credibility.	System should provide endorsements from respected sources.	E-shop shows a logo of a certificate that assures that they use secure connections. Web site refers to its reward for high usability.
Verifiability Credibility perceptions will be enhanced if a system makes it easy to verify the accuracy of site content via outside sources.	System should provide means to verify the accuracy of site content via outside sources.	Claims on a Web site are supported by offering links to other Web sites.

reputed credibility and earned credibility influence users, doubtless even more than many of the abovementioned principles much of the time, but because these cannot really be represented as system features, they are excluded.

The design principles in the social support category have been adopted from Fogg's principles on mobility and connectivity. The opportune and inopportune moment and the ideas behind information quality, convenience and simplicity have been covered in the postulates in other categories.

Table 6.5 Social Support

Principle	*Example Requirement*	*Example Implementation*
Social Learning A person will be more motivated to perform a target behavior if (s) he can use a system to observe others performing the behavior.	System should provide means to observe other users who are performing their target behaviors and to see the outcomes of their behavior.	A shared fitness journal in a mobile application for encouraging physical activity (Consolvo et al. 2006).
Social Comparison System users will have a greater motivation to perform the target behavior if they can compare their performance with the performance of others.	System should provide means for comparing performance with the performance of other users.	Users can share and compare information related to their physical health and smoking behavior via instant messaging application (Sohn and Lee 2007).
Normative Influence A system can leverage normative influence or peer pressure to increase the likelihood that a person will adopt a target behavior.	System should provide means for gathering together people who have the same goal and make them feel norms.	A smoking cessation application shows pictures of newborn babies with serious health problems due to the mother's smoking habit.
Social Facilitation System users are more likely to perform target behavior if they discern via the system that others are performing the behavior along with them.	System should provide means for discerning other users who are performing the behavior.	Users of a computer-based learning environment can recognize how many co-students are doing their assigned homework at the same time as them.
Cooperation A system can motivate users to adopt a target attitude or behavior by leveraging human beings' natural drive to co-operate.	System should provide means for co-operation.	The behavioral patterns of overweight patients are studied through a mobile application, which collects data and sends it to a central server where it can be analyzed at the group level in more detail (Lee et al. 2006).
Competition A system can motivate users to adopt a target attitude or behavior by leveraging human beings' natural drive to compete.	System should provide means for competing with other users.	Online competition, such as Quit and Win (stop smoking for a month and win a prize).
Recognition By offering public recognition for an individual or group, a system can increase the likelihood that a person/ group will adopt a target behavior.	System should provide public recognition for users who perform their target behavior.	Names of awarded people, such as 'stopper of the month,' are published on a Web site. Personal stories of the people who have succeeded in their goal behavior are published on a smoking cessation Web site.

Example

In this section, we will demonstrate the feasibility of the suggested conceptual framework through discussing a contemporary, commercial system that incorporates several distinct persuasive techniques in its functionality. The four described functionalities belong to the four different categories.

The Nike+ running system comprises a pair of running shoes with a built-in pocket for a running sensor, an mp3 player or a sport band and a web service (Nike+ 2008; see Figure 6.4).

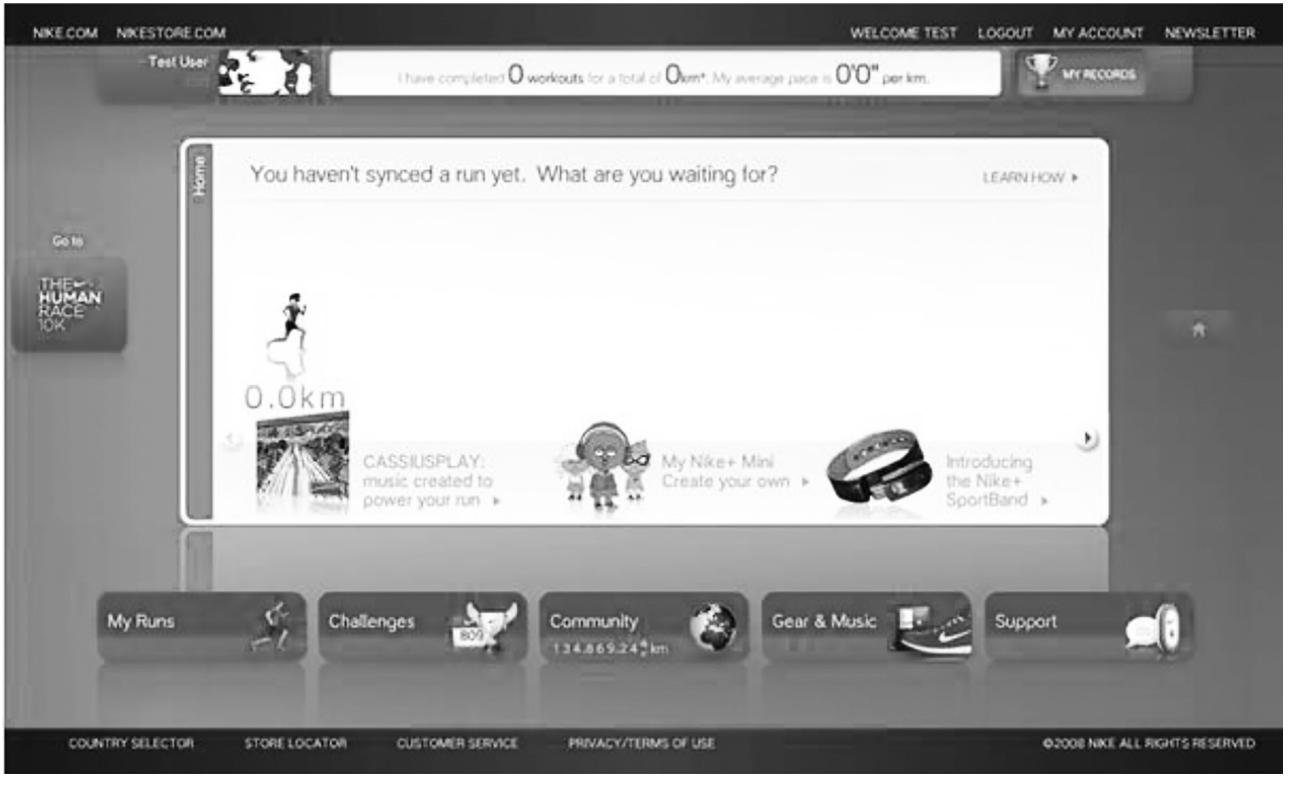

Figure 6.4 The Nike+ Web Service

The sensor tracks running information and sends the data to the mp3 player or a special sport band on the runner's wrist. While running, the user can hear summary feedback such as his or her pace, time, distance and calories burned. After running, the user can download his or her training information to the web service (Nike+ 2008) and see the full run data.

The Nike+ system supports users' primary task by reducing the complexity of planning the exercises via suggesting training programs. These have been categorized according to the runner's goals, e.g. 'walk to run,' '5k,' '10k,' 'half marathon,' 'marathon' or 'build your own.' When the build your own feature is selected, the application works like an electronic calendar where the user can add his or her own runs and distances per day (see Figure 6.5). The system also leverages the principle of personalization by enabling the adding of one's own name and picture to the screen. Naturally, self-monitoring is utilized by providing a means to track the running information.

The computer-human dialogue is supported by praise and rewards. The user is able to set challenges at individual or team levels. After achieving the goals that have been set, the user receives a reward and the system praises him or her, for instance, by saying "Congratulations! You achieved your goal" (see Figure 6.6).

The system credibility emphasizes expertise behind the system. For instance, when a user tries to create his or her own training program, the system brings its expertise to the fore, suggesting one of its offerings by saying: "Nike+ training programs were exclusively developed by Nike elite trainers for a range of goals and experience levels." It also uses the expression 'coach' with its training program offerings (see Figure 6.7).

Figure 6.5 Leveraging the Reduction Principle: The Creation of a Training Program

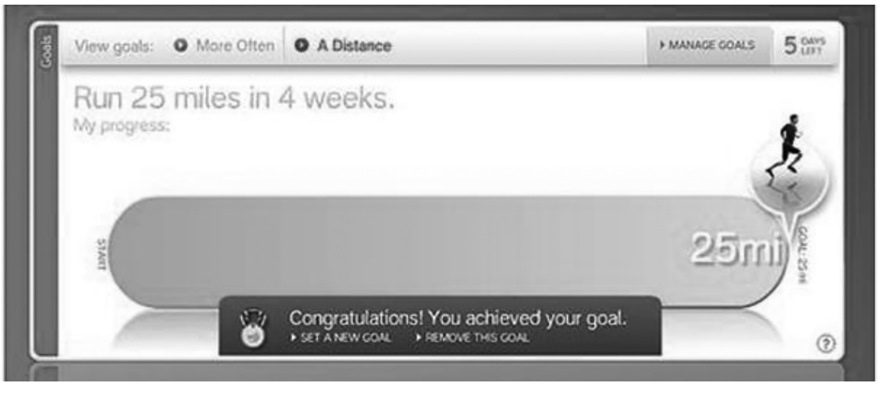

Figure 6.6 Leveraging Praise and Rewards: The Positive Feedback After Goal Attainment

Figure 6.7 Showing Expertise by Providing Background Information

Figure 6.8 Leveraging the Principle of Co-Operation: Creation of a Group Challenge

The system also motivates users by leveraging social support. Besides individual challenges, it provides opportunities to define team challenges. A team goal can be a distance race (e.g. "the first team to run 100 miles"), the most miles (e.g. "the team that runs the most miles in 30 days") or a distance goal (e.g. "every team has to run 500 miles this season") (see Figure 6.8). Challenges or goals that are shared by team members are supposed to leverage human beings' natural drive to cooperate via achieving the goal together. Users may also be influenced by normative influence (i.e. peer pressure) as a consequence of the pressure of achieving one's own part of the shared goal. Furthermore, the system utilizes other principles from the social support category. An individual user's profile can be 'public' so that all of one's running data (as well as home towns, 'power songs,' usernames and pictures) will be shared with other users as well. In doing this, the system leverages the principles of social learning by providing means for observing others performing the same behavior and social comparison by offering means for comparing their performance with the performance of others. The system also provides means for public recognition. For instance, there is the fastest run challenge (e.g. "the person with the fastest 5k run by September 30 wins"), in which the winner gets public recognition in front of other runners.

The aforementioned functionalities by no means cover all of the persuasive qualities of the referred system, but they help demonstrate the practicality of the theoretical framework put forth in this chapter.

Conclusion

This chapter has presented a framework for designing and evaluating persuasive systems, known as the Persuasive Systems Design (PSD) model. The underlying postulates behind persuasive systems were defined and the importance of a thorough analysis of the intent, event and strategy was brought to attention. Although this chapter is conceptual and theory-creating by its nature, it has practical implications. It was proposed that persuasion principles should be considered mainly as requirements for software qualities. Twenty-eight design guidelines, mostly based on Fogg's functional triad, were defined with software requirement and implementation examples. A new categorization of the principles was based on their key benefits, which makes them more practical for actual systems development. In future research, experimental work will be needed

to demonstrate the framework's applicability in various real-life design and usage situations. The suggested postulates, means for analyzing the persuasion context, new categorization and design principles may become especially useful in motivating and persuading users to reach their own personal goals.

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Note

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7

ALIGNING POLICY TOOLS AND THEIR TARGETS

Nudging and Utility Maximization in Policy Design

Michael Howlett

Introduction: The Utilitarian Roots of Policy Design Thinking

Policy tools have targets (Weaver, 2009a, 2009b, 2010). These are not just 'targets' in the sense of policy aims and goals and their measures but 'targets' in the sense of individuals and groups whose behavior is expected to be affected by policy activity (Kiviniemi, 1986).[1] Tools and targets are linked in the sense that policy tool use involves implicit or explicit assumptions and expectations about the effect that tool deployment has upon those impacted by it (Schneider and Ingram 1990b; Schneider and Sidney 2009). It is critically important for policymaking that the behavior resulting from tool use in practice actually matches that anticipated in the pre-deployment or formulation period (May, 2004; Kaine et al., 2010; Duesberg et al., 2014; Lynn, 1986). Regardless of whether those targets are purely social constructions with few empirical referents (Schneider and Ingram, 1993, 2005) or if they reflect a more objective assessment of the actual behavior of relevant groups of policy actors, efficient and effective policymaking requires that tools match targets and vice versa.

Despite the fact that 'compliance' with government intentions has been a significant issue in areas such as regulatory studies for many years (Feeley, 1970; Etienne, 2011; Meier and Morgan, 1992; Rodgers, 1975; Mulford and Etzioni, 1978), this aspect of policy design has only rarely been systematically examined (Grabosky, 1995; Weaver, 2009a, 2009b, 2013, 2015, Winter and May, 2001; Neilsen and Parker, 2012). Moreover, it has only rarely been related to the effective use of particular kinds of policy instruments (Duesberg, 2014; Neilsen and Parker, 2012; Corner and Randall, 2011) and to decisions to use one, or more, of some particular type rather than another (Taylor et al., 2013).

In fact, studies of policy design, and many designs themselves, have often been developed with only the most rudimentary and cursory knowledge of how those expected to be affected by the policy are likely to react to it (Lewis, 2007; Corner and Randall, 2011; Taylor et al., 2013; Duesberg, 2014). This tendency has changed somewhat in recent years as scholars and practitioners alike, influenced by behavioral economics, have come to appreciate that members of the public and other policy actors often predictably behave in less than perfectly rational ways (Ariely, 2010; Thaler et al., 2010; Thaler and Sunstein, 2009; Mulgan, 2008; Bason, 2014). It is nevertheless often still assumed that policy targets are rational self-maximizers, calculating their best interests

hedonically in deciding whether or not to comply with the demands of government instruments and mechanisms such as regulation, laws and subsidies (Stover and Brown, 1975; Gevrek and Uyduranoglu, 2015; Weaver, 2014; Jones et al., 2014; Duesberg, 2014; Araral, 2014; Maskin, 2008). Hence, much work in this area focuses around the idea of 'getting incentives right' or calibrating incentives and disincentives, often financial, to achieve expected levels of compliance and outcomes—not upon examining other, more normative or culturally determined aspects of target behavior (Oliver, 2013; Shafir, 2013).

The utilitarian way of thinking about public policy compliance and policy implementation is generally congruent with the orientation towards policymaking in general that has been pervasive in the policy sciences from the very founding of the discipline (Tribe, 1972; Banfield, 1977). This orientation continues to dominate even more nuanced recent thinking about tool use linked to notions of policy 'nudging,' despite its questioning of the relevance of many traditional utilitarian concepts such as perfect information and reciprocal risk and benefit valuations in both policy analysis and design activities (Oliver, 2015; Legett, 2014; Room, 2013; John et al., 2009). Although this more recent work disputes the idea of the presence of 'perfect rationality' among policy targets (an idea that often colors economistic analyses), it still accepts uncritically most of the hedonic assumptions of classic utilitarian thinking: that 'subjects' are motivated to promote pleasure and avoid pain and do so in an essentially calculating 'cost-benefit' fashion when confronted by the choice of whether or not to comply with government measures (Steg et al., 2014). Legitimate taxes and rules were often simply expected to be paid and obeyed by the majority of citizens and targets, with penalties and fines established to punish non-compliance in such a way as to 'deter' a minority of non-compliers and the spread of unwanted and illegitimate behavior to the majority (Doern and Phidd, 1983). Utility calculations could then be extended to the calculation of the calibration of penalties, with these set at such a level as to punish those who might contest the legitimacy of such actions or seek to free-ride on compliers (Lowi, 1966; Balch, 1980).

In practice, however, the compliance of policy targets with government intentions is a more complex problem (Meier and Morgan, 1982; Shafir, 1993; Kahneman, 1994). Empirical studies of the degree of compliance of targets with the exercise of coercive authority on the part of governments (in the form of the creation and imposition of tools and instruments such as laws, regulations and taxes) have found this behavior to involve both a normative component and a utilitarian one (May, 2004). That is, government efforts such as raising tax revenues or enforcing regulations is often a kind of private-public collective action problem in which actions taken by governments on the part of the general public—such as levying taxes to pay for services—requires a belief on the part of targets that the use of coercion to set and collect such taxes is legitimate and that it is in their self-interest to pay them (Hofmann et al., 2014). Similarly, persuasion and education are typically seen as providing superior results to fines and penalties in changing behavior in areas such as farming practices and others (May and Winter, 1999).

Weaver (2009b, p. 5) has recently enumerated some of the various 'compliance problems' or 'barriers' to compliance that targets and governments face. These include:

- **Incentive and sanction problems** where positive and/or negative incentives are insufficient to ensure compliance;
- **Monitoring problems** where target compliance may be difficult or costly to monitor;
- **Resource problems** where targets lack the resources to comply even if they want to;
- **Autonomy problems** where targets do not have the power to make decisions that comply with policy even if they want to;

- **Information problems** where targets lack information that would make compliance more likely; and
- **Attitude and objectives problems** where targets are hostile/mistrustful towards providers or programs.

As this shows, the compliance situation is more complex than a purely utilitarian perspective focused on deterrence would have it. In most circumstances, governments must determine whether or not a target is likely to comply with government actions and intentions and whether any compliance is reluctant or freely given (Scholz, 1991).

That is, even the most basic activities of governance, such as collecting taxes and ensuring that laws and rules are obeyed, involves not just individual hedonic behavior but also considerations on the part of targets and the public of issues such as the legality and normative 'appropriateness' of the government's levying and collecting such taxes or passing and enforcing such rules (March and Olsen, 1989; Parker and Neilson, 2012). Moreover, different kinds of target groups and individuals exist or are perceived to exist in terms of government expectations of the nature of compliant or non-compliant behavior, and these groups can be and are treated differently by governments. And, of course, governments have more tools at their disposal than just authority-based ones and thus have a range of options available both to implement policy and to promote compliance, including those linked to education and persuasion of targets (Hawkins and Thomas, 1989; Hood, 1986).

Re-Conceptualizing Target Behavior

The immediate aim of most public policy is to invoke behavioral change in the 'targets' of government efforts needed for compliance with government aims. This is done in order to secure better adherence of populations to government aims—be it in the promotion of public safety and security or in the provision of effective healthcare and social welfare. Compliant target behavior is expected to be achieved through the deployment of governing resources in the form of specific combinations of substantive and procedural policy tools aimed at specific kinds of behavior (Anderson, 1977; Baldwin, 1985). Desired changes can be large or small, and the expectation of compliance can be rapid or gradual. But in all cases, some changes in behavior in a direction congruent with government aims are expected from the utilization of state resources.

Of course, if perfect compliance of targets with government aims existed automatically, there would be little purpose in undertaking state activity beyond providing targets with information about government goals and expected corresponding behavior, which would then simply occur. Why such compliance is not always forthcoming is thus a key question in the policy sciences, related to better understanding the conditions of policy success and failure and the kinds of designs and activities more likely to attain success with minimal effort and expenditure (Feeley, 1970; Mulford and Etzioni, 1978). The subject, however, is one that has often been examined only in a very cursory fashion and under the burden of many, mainly economistic, assumptions about the motivations and behavior of policy targets (Stover and Brown, 1975).

Variations in target structure, motivation and compliance behavior make policy design a much more challenging activity than a simple hedonic utilitarian perspective would have it. It is an even more complex situation than portrayed by behavioral economics, as even behaviorally inspired 'rules' of semi-rational economic calculations are not enough to capture all the considerations of cultural and psychological appropriateness cited above (Knetsch 2011; Koh 2011). It is critical to understand whether a proposed action is likely to trigger behavior linked to 'affiliation' or 'conformity' with government wishes, or whether it may result in various kinds

of non-compliance—from outright disobedience to 'boomerang' effects encouraging the action they are aimed at discouraging, or vice versa (Cialdini and Goldstein, 2004; Cialdini et al., 2006). Such behaviors are not yet well understood.[2]

Despite the evidence and concerns over a predominant focus on the utilitarian viewpoint, this perspective has only been seriously challenged in the policy sciences in relatively few instances where it has been undeniably apparent that target behavior is motivated by considerations other than utility. This is the case, for example, when logics of appropriateness clearly dominate over those of calculation in displays of patriotism or religiously inspired altruistic or resistant activity to, for example, war and military service (March and Olsen, 1989; 2004; Tyler, 1990; 2013). A purely utilitarian framework also is inadequate to explain, let alone correct, the continuance of clearly self-destructive behavior such as drug, alcohol or smoking addictions despite prohibitions up to and including death penalties and long prison sentences (Vimpani, 2005; McGoldrick and Boonn, 2010).

Empirically, however, holding a utilitarian position such as this has become increasingly difficult. In recent years, consideration of and plans for 'nudging' and other aspects of the application of the findings of behavioral economics and behavioral psychology to policymaking have undermined the utilitarian paradigm and brought a new non-utilitarian focus to contemporary policy studies (Thaler and Sunstein, 2009). The same is true of the recent employment of policy tools such as co-production or faith-based public service delivery (Alford, 1998; Hula et al., 2007; Kissane, 2007; Zehavi, 2008) and, to a lesser extent, in areas affected by 'social marketing' efforts (Pykett et al., 2014). These have also undermined confidence in the ability of utilitarian models to capture critical aspects of target behavior responsible for participation in, and compliance with, government schemes and intentions, and have led to more efforts to better understand these phenomena. This is the case, for example, with efforts to use information-based tools or moral suasion to try to convince citizens to do their duty, for instance in refraining from littering (Grasmick et al., 2001; John, 2013); to 'do the right thing' in giving up their seats on public transportation to pregnant women, the disabled, the elderly and others less fortunate than themselves; or to pay their taxes (Stanbury and Fulton, 1985; Bardach, 1989; Torgler, 2004; Corner and Randall, 2011).

Designing for Compliance: Linking Policy Target Behavior and Policy Instruments

Targets can be influenced to behave 'appropriately' and comply with government wishes through many means in addition to fines and penalties, such as financial incentives and efforts at moral suasion and education, which governments may have in higher or lower levels of supply (McLeod et al., 2015; Hood, 1983). These compliance situations are made even more complex by the fact that different targets have different resources, capabilities and attitudes when it comes to determining whether or not they will comply and how, and to what extent they will not. These attitudes and behaviors can be quite complex and rooted in historical and culturally specific views of government intentions and the moral and other aspects of the appropriateness of compliant and non-compliant behavior (Wan et al., 2014; 2015). These attitudes can include, for example, considerations of the legitimacy and illegitimacy of government actors and actions in specific fields, such as constitutional, religious or privacy-related ones, but can also involve the desire on the part of individuals and groups to earn praise or avoid shame, guilt or social opprobrium for their actions (Cialdini and Goldstein, 2004; Beetham, 1991, Weber, 1978; Hofmann et al., 2014).

But what is the best way to ensure compliance? This is not a trivial issue in policy theory and practice. Is the best way to encourage an increase in birthrates, for example, to provide subsidies that might tip the balance of a woman's or family's calculations of the affordability of

children? Or is it more effective to promote family-centered events and activities in public service announcements and movie, television and other entertainment placements that promote the notion of home life and the pleasures of children and family (Lichtenstein and Slovic, 2006)? Or both? Policy tool considerations built around the first orientation can involve debates and discussions around particular kinds of financial tools, such as more widely distributed and available subsidized daycare and better local schools, not just around how much of a direct subsidy in the form of tax incentives or cash grants will promote higher levels of childbirth and larger families (Woodside, 1979). Considerations built around the second orientation may involve activities such as movie theatre and TV public service advertisements and educational programs in schools and elsewhere as well as the actual provision of new services or subsidies. And little is known about whether both approaches work in conjunction with each other or at cross purposes.

The need to move beyond pure utilitarianism, or rather to return to more supple, earlier notions of target behavior, however, became apparent in recent years as governments around the globe moved to pursue new kinds of policy mixes to address continuing problems that eschew rapid resolution: entrenched poverty, homelessness, drug addiction, crime and many others.

One important development during this era was related to the findings of behavioral economics: the expectation that the insights generated by behavioral economists will lead to better outcomes—that is, to more compliance and behavior change congruent with government wishes (Selinger and Whyte, 2012; Liu et al., 2014). This approach promoted the design and adoption of tools linked to modest behavioral modification through the provision of 'nudges' or subliminal and other types of cues and decision frames or 'choice architectures' (Thaler et al., 2010; Liu et al., 2014; Lehner et al., 2016). Other governments similarly devoted much time and energy to 'social marketing,' or the use of enhanced appeals to collective identities and social mores (such as altruistic or non-altruistic corporate social responsibility (CSR) voluntary codes), with a similar expectation that increased and improved compliance could be achieved at modest or less cost using different instruments from those used in traditional command and control regulation (6 et al., 2010; John, 2013; Dolan et al., 2014; Tallontire, 2007; Steurer, 2010; Campbell, 2012).

These more recent efforts to focus on behavioral economics and social marketing cast doubt on orthodox views of compliance and the motivations of target behavior (Lourenço et al., 2016; Low 2011). Poor experiences with even these alternative tools, however, have prompted a re-thinking of the relationship between policy tools and behavior and the need for better and more evidence-informed design (Howlett and Lejano, 2013; Moseley and Stoker, 2013).

Tools and Targets

There must be some congruence between tool characteristics and target behavior in order for there to be any impact at all from the deployment of governing tools. Taxonomies of policy tools generated in earlier eras (Tupper and Doern, 1981; Hood, 1986; Vedung, 1997; Howlett, 1991) can help shed some light on this relationship by clarifying the nature of the governing or 'statecraft' resources employed by different types of tools in their deployment and why such tools would be expected to lead to high levels of compliance (Hood, 1995; Hood, 1991; Dunleavy and Hood, 1994; Riker, 1983, 1986; Dunsire, 1986; Salamon, 2002).

Hood (1986), following Anderson (1977), grouped tools into a small number of categories according to whether they rely upon the use of 'nodality' (or information), authority, treasure or the organizational resources of government for their effectiveness (see Figure 7.1). The overall range of policy tools available to governments includes both the 'substantive' ones traditionally examined by economists and a range of less economically oriented 'procedural' ones (Howlett 2000) that can be used to affect interest group and other actor behavior. This occurs, for

			Governing Resource and Target Need		
		Information	**Authority**	**Treasure**	**Organization**
Purpose of Tool	**Substantive**	Public information campaign	Independent Regulatory agencies	Subsidies and grants	Public enterprises
	Procedural	Official Secrets Acts	Administrative advisory committees	Interest group funding	Government re-organizations

Figure 7.1 A Resource-Based Taxonomy of Procedural and Substantive Policy Instruments (*cells provide examples of instruments in each category*)

Source: Adapted from Howlett (2000).

Tool Type	*Statecraft Resource Applied*	*Target Behavioral Pre-requisite*
Nodality	Information	Credibility/Trust—willingness to believe and act on information provided by government
Authority	Coercive power/force	Legitimacy—willingness to be manipulated by government-invoked penalties and proscriptions
Treasure	Financial	Cupidity—willingness to be manipulated by gain/losses imposed by governments
Organization	Organization	Competence—willingness to receive goods and services from government and enter into partnership arrangements

Figure 7.2 Behavioral Needs for Resource Effectiveness

Source: Adapted from Howlett (2011, p. 55).

example, in the use of information-based procedural instruments that can facilitate the provision of information as well as suppress it and can involve the release of accurate as well as misleading information (Mueller, 1973; Saward, 1992).

Hood's idea was that each basic category of tool relied upon a particular different kind of governing resource and that the available supply of tools would influence why one tool would be chosen over another: that is, governments would utilize tools deploying resources it had in ample supply or that could be easily replenished (Hood, 1983).

However, 'demand-side' considerations are also very significant here. That is, in general, each category of tool involves the use of a specific governing resource that is expected to trigger a specific characteristic or target receptor. Thus, the effectiveness of the deployment of such resources is linked both to resource availability—a precondition of their use—and to the existence of different 'receptors' on the part of policy targets that make them receptive to the use of this resource. In the case of information use, for example, its effectiveness relies on the availability of knowledge and the means to distribute it, but also on the target's belief in the accuracy of the messages, or their *credibility*. Similarly, the effectiveness of authoritative tools, as discussed above, depends on target perceptions of government *legitimacy*; the effectiveness of treasure resources on target group financial need and receptivity to government funding or their *cupidity*; and the effective use of organizational tools upon target group perceptions of government *competence* and fairness. Figure 7.2 presents a model of the behavioral pre-requisites upon which governing tools rely.

Very different and distinct behavioral patterns and motivations underlie the effectiveness of each category of tool and governing resource, most of which are not susceptible to

utilitarian calculations on the part of targets. The use of authority-based tools such as laws and regulations, for example, involves considerations of legitimacy on the part of targets, and governments must not over-reach or over-burden the extent of legitimacy that they enjoy (Suchman, 1995; Hanberger, 2003). If a policy measure does so, it most assuredly will require much monitoring and enforcement activity in order to be even minimally effective, involving administrative costs and burdens that may well undermine its own efficiency and effectiveness. This has occurred in the past in many countries in areas such as marijuana or alcohol prohibitions (Issalys, 2005).

The same non-utilitarian behavioral logic extends to the use of taxes and subsidies, although the behavioral characteristics of treasure-based policy tools are not the same as for authority-based ones. That is, such tools achieve their ends not through a legitimacy-coercion matrix of encouragement and deterrence but through the willingness of subjects to be manipulated, more or less voluntarily, by financial incentives and disincentives (Surrey, 1970; Woodside, 1979). These tools rely on the 'cupidity' of their targets and again will only be as effective to the extent that those targets are willing to accept financial awards or penalties from governments and alter their behavior accordingly (Braithwaite, 2013). Calibrations of the settings of such tools are often undertaken on a purely utilitarian basis, but the extent of cupidity or greed on the part of policy targets varies dramatically by group and subject matter, as governments discover whenever they attempt, for example, to discourage cigarette and tobacco use or obesity by discouraging consumption through excise taxes on harmful products (Gullberg and Skodvin, 2011; Coffman et al., 2016). Such actions may work in some cases and products or among some groups, such as the elderly in the case of tobacco control, but fail in others, such as young women and younger people in general (Studlar, 2002).

This same pattern is also true of the use and effectiveness of the deployment of information (John, 2013). As the poor experiences of the application of insights from behavioral economics and psychology to policymaking in the form of 'nudges' or informational cues shows, consideration by targets of the credibility of messages sent and received and the willingness of targets to trust their contents and promises is critical to what type and extent of behavioral response will ensue (Weiss and Tschirhart, 1994). It is also true of many different public information and marketing campaigns in areas of such as obesity and the ingestion of dangerous products, for example (Kersh, 2015; Barreiro-Hurlé, 2010; Padberg, 1992).

The use of information tools involves a subtle effort to match resource expenditure and target behavior, as do both the authority-coercion or financial incentive-based efforts cited above, but based upon a different compliance logic. Some treatments of these information tools still base their analysis on behavioral assumptions in which manipulation is sometimes expected to follow government cues unthinkingly ('nudges'); this underestimates the impact of trust and credibility of the information sent and received. In addition, 'libertarian paternalism' (Sunstein, 2015) may well undermine these efforts at persuasion by leading to a general distrust of government (Jones et al., 2013; Wilkinson, 2013; Mols et al., 2015; Galizzi, 2014; Momsen and Stoerk, 2014; Carter, 2015). Efforts at 'social marketing' discussed above also feature the use of informational or 'nodality' tools (Hood, 1986), ones that appeal directly to sentiments of collective solidarity and the moral duty of citizens and groups that invoke values well beyond individual utility calculations (Corner and Randall, 2011).[3]

Two aspects of policymaking complicate this situation: the fact that many situations involve multiple tools or policy mixes (Howlett, 2014; Howlett and del Rio, 2015) and that images of policy targets are often socially constructed in such a way that they contain prejudices and biases about individual and group behavior that interfere with their true representation (Schneider and Ingram, 1990a, 1997).

In all but the simplest situations, governments often face complex environments in which they encounter not just one but multiple actors and groups as 'targets.' What works with one group or section of a group may not work with another, and it is not unusual to require a range of governing resources and tools in order to deal with such complex, 'target-rich' environments (Reichardt et al., 2016).

Moreover, these policy mixes or bundles of policy instruments typically involve not only a number of targets and tools but also a range of motivations across a range of tools. This makes the assessment of the motivational structure of a policy realm more complex and difficult. It also suggests that rather than think about compliance in the context of single target-single instrument dynamics, policy design should center on multiple target-multiple instrument ones (Givoni, et al., 2012).

When designing for high levels of compliance in such situations, the appropriate response of governments is to create a 'compliance regime' involving a mix of tools and elements. A basic regime of this kind includes such traditional utilitarian components such as:

- Providing positive incentives for compliance;
- Having negative incentives for non-compliance; and
- Providing prohibitions and requirements with punishments attached.

But it should also include less utilitarian components such as:

- Providing information about what behavior is compliant, how to comply and the advantages of compliance;
- Providing admonitions to comply on moral, self-interested or other grounds as well as utilitarian ones;
- Providing resources to comply that may be targeted to those who would otherwise lack those resources;
- Manipulating options and defaults (choice architecture) without substantially affecting the payoff to individuals of so doing.

(Weaver, 2015, p. 6)

The second complication revolves around the accuracy of depictions and estimates made of target motivations and behavior. In general, the logic of target behavior allows governments to classify targets according to their likelihood of complying with government aims and desires. Hence, for example, healthcare clients and citizens facing obesity challenges may be young or old, share some ethnic or racial characteristics, be segmented by gender and in other ways and come to a policy situation with a range of understanding of obesity science and views about food, and some of these distinctions may be important in affecting compliance, while others may not be or may be less significant.

Figure 7.3 shows how estimations and diagnoses about likely compliance behavior can usefully be linked to the use of specific kinds of governing instruments involved in coercive versus persuasive actions on the part of governments (Hawkins and Thomas, 1989)

As Weaver (2009a, 2009b, 2014) has pointed out, there is a spectrum of potential compliers and non-compliers, and compliance regimes have to deal with a variety of actors and behaviors ranging from unwilling to willing. Governments need to know which specific kinds of actors fall into which category (Braithwaite 2003) in order to accurately design policies. How governments perceive these targets and classify groups within them is thus a critical aspect of policy design.

However, as Schneider and Ingram (1993, 1997, 2005) have repeatedly pointed out, there are often limits on government's abilities to discern the true nature of compliance relationships.

		Likelihood of Compliance	
		High	**Low**
Willingness to Comply	High	*Model subjects* Require little coercion, education or persuasion	*Reluctant subjects* Require education and persuasion
	Low	*Resistant subjects* Require incentives to comply	*Combative subjects* Require a high level of coercion and monitoring to compel compliance

Figure 7.3 Nature of Compliance of Policy Targets

Source: Modeled after Scholz (1991).

That is, as the expected behavior of policy targets is often framed by government agencies using 'positive' or 'negative' stereotypes and whether they are powerful or weak actors in society. Social constructions of target populations may stereotype particular groups using tropes that have been created by politics, culture, socialization, history, the media, literature, religion and the like. In practice, the types of tools used to address problems involving these groups often varies directly according to their categorization, with positively viewed targets receiving benefits and negatively viewed ones 'burdened' by costs (Esaiasson, 2010).[4]

Conclusion: Dealing With Multiple Targets and Socially Constructed Target Groups

The fundamental design problem for governments, then, is not just determining a given governmental resource endowment and calculating the range of prison sentences or the number of fines and subsidies to levy in some situation based on a utilitarian compliance-deterrence logic, but rather to understand on which basis compliance is likely to occur or not—that is, to what extent a government enjoys legitimacy, credibility, competence and cupidity among target groups.

This is a design challenge that requires detailed empirical investigation and analysis in each case of tool deployment and continued monitoring over time to ensure that the fundamental conditions have not changed or been undermined. Governments enjoying a high level of trust, for example, may be able to undertake actions through moral suasion, while governments that do not enjoy that credibility will need to employ other tools. But whether or not this high level of trust is being maintained is a key determinant of policy effectiveness; continual monitoring and assessment are required to ensure this remains the case and that existing tools continue to function effectively over time.

This situation highlights the significant linkages that may exist between both perceived and actual target behavior and government tool use (Unsworth, 2014). Accurately determining what is real and what is merely stereotypical requires careful empirical research and clarity on the part of government, and governments should avoid stereotypes and simple estimations of target group attitudes and power.[5]

These insights into the nature of policy tools and their links to their targets offer several lessons for practitioners, analysts and policy designers alike. First, effective policy design must go beyond the simple utilitarian notions of compliance that abound in the literature (Duesberg et al., 2014; Hofmann et al., 2014). Second, tools use different resources and draw on different aspects of target behavior in achieving effectiveness (Gunningham et al., 1998), so a range of tools is likely needed to achieve expected compliance targets.

Third, targets are often complex entities, and a range of different target behaviors will often be present in any particular situation. It is therefore unlikely that 100% compliance can be attained through the deployment of any single type of tool. To the extent that a high level of compliance is desired by government, a range of tools addressing and utilizing different kinds of motivations should be employed. This is the case, for example, with situations in which drivers are urged to avoid speeding on safety and citizenship grounds, but those who fail to comply face onerous penalties and fines. Fourth, there may be trade-offs between different tools, and the deployment of one tool may undermine the use of another. This has been documented, for example, in the use of 'excessive' efforts to monitor and collect taxes, which can lead to a diminishment in voluntary, citizenship-based compliance with tax law, upon which most tax collections regimes rely (Hofmann et al., 2014; French, 2011; Rathi and Chunekar, 2015).

Finally, designers should be extremely vigilant in not falling prey to fully socially constructed designations of target populations that reflect prejudices and ideologies rather than facts (Schneider and Ingram, 1993, 2005). In this sphere, as in many others, 'evidence-based compliance' is preferred over uninformed presuppositions and judgments. Where evidence is lacking, policymakers should undertake policy experiments able to discern behavioral responses (Nair and Howlett, 2015; Vreugdenhil et al., 2012).

Notes

1. Note this is different from the 'policy targets' invoked by Boswell (2014) and others, which relate to measures and indicators of policy goals or objectives rather than their intended audience or 'public.' See also Ghosh et al. (2014) for a similar use of the term.
2. Hence, for example, Kallgren et al. (2000) and de Groot and Schuitema (2012) note that norm compliance can be affected by the type of 'message' sent urging compliance and its negative or positive nature, as well as other factors linked to the character of the underlying norm itself. These are critically important facets of policy design that are only vaguely understood and little studied (see also Schultz et al., 2007).
3. These efforts at 'co-production' and co-design or co-management often aim at re-designing service delivery through various forms of partnerships in which some division of labor emerges between state and non-state actors (Pestoff et al., 2006; Voorberg, 2014; Alford, 1998; Braithwaite and Levi, 2003). But, again, the willingness of targets to partner in these activities, as in the case of more traditional government-based ones, requires targets to assess the competence of government agents to deliver or plan such services in a timely and appropriate way.
4. Positive constructions include images such as 'deserving,' 'intelligent,' 'honest,' 'public spirited' and so forth. Negative constructions include images such as 'undeserving,' 'stupid,' 'dishonest' and 'selfish.' More coercive measures are often used against groups perceived as 'deviants' rather than against other groups than might actually be more resistant to government initiatives. Similarly, tools such as subsidies and other kinds of payments might be most effective if used in dealing with 'dependents' but are often given instead to advantaged groups (Schneider and Ingram, 1993, p. 337).
5. While there is no denying that targets are politically and socially constructed, there is also a significant 'objective' linkage in the expectations that governments have about compliance. That is, advantaged groups are usually expected to comply or have similar interests or share government aspirations in general more than are deviants, and dependents are able to evade controls in the same way as adversary groups (Pierce et al., 2014).

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8

DESIGN THINKING IN PUBLIC POLICY

Michael Mintrom and Joannah Luetjens

Public policies are made in capital cities, but they live or die in suburbs and neighborhoods. For decades, policy analysts have been encouraged to think hard about the day-to-day experiences of the clients of government services and those delivering such services. Only through understanding your world can you begin to devise policies that will contribute to improved outcomes. Recently, people developing public policies have begun to adopt the practices of industrial designers as a means of understanding how clients interact with government services. This design thinking is a powerful analytical approach. It fits neatly with the view that public policies represent specific interventions intended to enhance public value. However, the possibility exists that those interventions will work well in some locations and not so well in others.

Design thinking should matter to governments because many gaps exist between the services governments deliver and what citizens want or need. In a recent review of government processes in the Australian context, Peter Shergold (2015, p. 17) stated that "good policy should harness the views of those likely to be impacted by the proposal." Scope exists for governments to better design their processes to become more responsive to citizen expectations. This is crucial for enhancing public value (Mintrom and Luetjens, 2017; Moore, 1995).

By consistently applying design thinking, those involved in policy development can begin to devise policies and programs in ways that allow for local variation in implementation, with the goal of raising overall policy effectiveness. Design thinking challenges the notion that smart people located in government precincts can define policy problems without leaving the office. It forces policy analysts to get out of their comfort zones. When policy analysts spend time in the field, meeting stakeholders, interviewing informants, building contextualized expertise and exploring the frequently divergent needs of different groups, many opportunities emerge for policy learning (Mintrom, 2003a). This willingness to become immersed in the worlds of those most affected by public policies, combined with the specific strategies of design thinking, holds the promise of improving the odds that public policies will produce intended positive effects. Design thinking can ensure that public policies will work as investments—interventions made today with the expectation that they will generate better social, economic or environmental outcomes in the future (Mintrom, 2019).

In the tradition of public policy theory and teaching, design has long been seen as a component of policy development (Howlett, 2010; Howlett and Rayner, 2007; Lynn and Gould, 1980; Schneider and Ingram, 1997). Policy implementation has also long been understood as

depending on the careful design of products and services (Alford, 2009; Lipsky, 1980; Wilson, 1989). Design thinking as an evolving discipline has its background in industrial design. Today, it is considered essential to product development (Brown, 2009; Martin, 2009; Brown and Wyatt, 2015). Whilst policymaking constitutes a design activity, to date design thinking has not been given prominence in discourse surrounding the policymaking process and the work of policy analysts. Consequently, we still know comparatively little about the design activities that bring policies into being—how policy designers identify problems and design criteria, what methods are employed in the design process and whether 'design thinking' is translated into policy action.

Policymaking practices evolve. Over time, various research and analytical techniques are incorporated into the frameworks that inform policy analysis. The embrace of better evidence offers a salient recent example, as does the focus on behavioral insights (see, e.g., Argyrous, 2012; Haskins and Margolis, 2014; Shafir, 2013; Thaler and Sunstein, 2008). Design thinking could likewise inform policymaking more broadly. For example, governments have long recognized the value of public input in policy development (Rosener, 1975). The difference between what has always been true of the best policymaking processes and design thinking is a heightened emphasis on the user perspective. Design thinking argues for greater empathy for the service user.

In this chapter, we provide an overview of contemporary design thinking in public policy and its potential for broader application. In the process, we discuss specific design thinking strategies, all of which have lengthy histories as social science methodologies. They are: (1) environmental scanning; (2) participant observation; (3) open-to-learning conversations; (4) mapping; and (5) sensemaking. We offer examples from Australia and New Zealand of how design thinking has recently informed policy development. We also look ahead to the future of design thinking in public policy. We view that future as potentially bright, although it will require important adjustments to established understandings of how policymakers and policy analysts perform their work.

The Nature and Appeal of Design Thinking

The origins of design thinking lie in Herbert Simon's (1969) *The Sciences of the Artificial*. Simon observed that "the intellectual activity that produces material artefacts is no different fundamentally from the one that prescribes remedies for a sick patient . . . or a social welfare policy for a state" (1969, p. 55). The ability to iterate, test and incrementally improve designs is central to Simon's model and is at the "core of all professional training; it is the principal mark that distinguishes the professions from the sciences." Simon subsequently extended his design focus to social planning. For him, such planning ideally aimed to help decision-makers "evaluate alternatives better" and "experience the world in more and richer ways" (1996, p. 130).

Design thinking emphasizes the importance of problem definition. The inclusion of citizen or 'end-user' perspectives in problem definition is said to enable a richer understanding of the problem and direct attention to more nuanced solutions (Chambers, 2003; Fung, 2006). Similarly, design thinking encourages end-users, policy designers, central departments and line agencies to work in a collaborative and iterative manner. The most important skill for a design thinker is to "imagine the world from multiple perspectives—those of colleagues, clients, end-users, and customers (current and prospective)" (Brown, 2008, p. 87). This is where greater empathy for different perspectives emerges. Design thinking does not start with a presumption of a known answer or even a well-defined problem. Through iterative ethnographic methods, as discussed later, design thinking holds the promise of bridging the common gap in public policy between the goals of policymaking and the experiences of citizens as they interact with government services.

To date, no single definition has emerged as to what constitutes design thinking. Clarification is in order. Design thinkers exhibit curiosity and empathy in their efforts to interpret how target

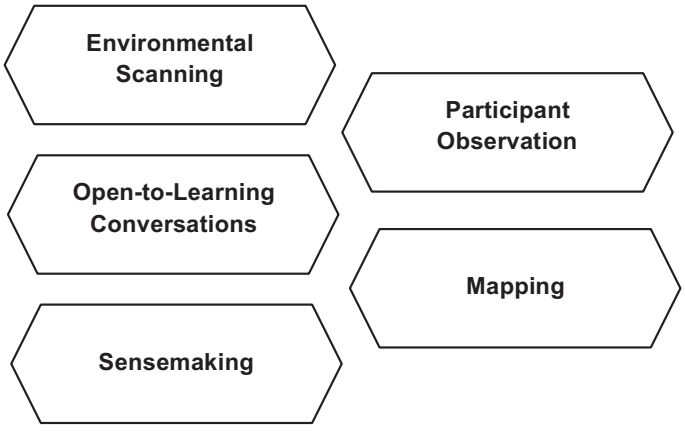
A. PHASES IN DESIGN THINKING

Design thinkers empathetically observe target groups to define problems and canvas possible solutions. Prototype development and testing are done iteratively in collaboration with the target group to ensure the chosen solution is fit for purpose.

1. **Empathetically observe target group**
2. **Explore the problem**
3. **Canvas possible solutions**
4. **Develop a prototype solution**
5. **Test the prototype with the target group**

B. KEY DESIGN THINKING STRATEGIES

Design thinking strategies can be combined to strengthen the targeting, development, and implementation of public policies.



C. POLICYMAKING PROCESSES

Design thinking can assist in problem definition, mechanism design, and program implementation. Its broader adoption could transform several traditional stages of policymaking.

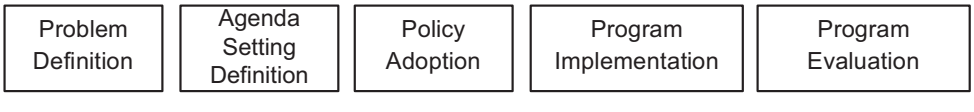


Figure 8.1 Design Thinking and Policymaking

populations engage with their world. They deploy various investigative techniques that have the potential to illuminate problems in new ways and indicate effective client-focused solutions. The benefits derived from design thinking depend on how it is understood and put into practice in each setting. Minimal value will be realized if one or two techniques are 'cherry-picked' and inserted into mainstream policy processes. We concur with Geoff Mulgan's (2014) observation that design thinking is "a synthesis of methods drawn from many fields . . . that together helpfully mitigate the traditional limitations of public policymaking" (p. 4). Those traditional limitations emerge from a lack of appreciation for how citizens and service clients make choices in specific contexts.

Design thinking raises interesting questions regarding legitimacy. Taken at face value, its methods promote input-oriented legitimacy and democratic participation. However, there is a question regarding the representativeness of the input as it is not yet clear who actually participates in the design thinking process. While some such as Fung (2006) and Habermas (1984) articulate the value of citizen participation, a legitimate outcome is contingent on the knowledge and willingness of an active citizenry. If design thinking is to become part of the policymaker's toolkit, serious consideration will need to be given to issues of trust, efficiency, democratic representativeness and effectiveness.

Figure 8.1 sets out the stages in design thinking and the key design thinking strategies discussed in this chapter. Design thinking can assist in problem definition, mechanism design and program implementation. Its broader adoption could transform several traditional stages of policymaking.

Applying Design Thinking in Policymaking

Traditionally, policymaking has been characterized as a rational process involving a linear path from problem definition to the analysis of options and the development of policy solutions. Increasingly, this view is being contested due to the inherent complexities facing the public sector. In complex systems, well-intended interventions often have unintended consequences. It is in this space that design thinking emerges as an approach to navigate and make sense of complexity.

Often, policymaking incorporates consultation with stakeholders late in the process, after problem definition has occurred, options have been analyzed and broadly acceptable ways forward have been explored. Consulting at this later stage reduces the risk of policy work being subjected to major challenge and being sent back to the drawing board. At the same time, this raises the risk of consultation being construed as a formality, intended to limit the ability of stakeholders to seriously inform policy design.

Design thinking highlights the value of early engagement with stakeholders. Various academics and public commentators have highlighted the use of design thinking as a way to inform problem definition (Liedtka et al., 2013; Dorst and Cross, 2001; Rowe, 1998; Buchanan, 1992). This could challenge some current mainstream policymaking styles, although conflict is not inevitable. The managerial brief is to manage policy development and policy consultation so that everyone involved understands why they are being consulted and how consultation is being sequenced.

Design thinking calls for specific skills that are not always present in public sector environments. This barrier to its greater use could be addressed through training. The requisite skills are well understood and their transfer has been codified in diverse disciplines, including anthropology, psychology, sociology, communication and design and architecture. It may not be necessary—or desirable—for everyone to have these skills. But the scaling up of design work in the public service would undoubtedly contribute to the diversity of skills required to more adequately acquire and analyze policy-relevant information.

Design thinking also encourages the transcendence of organizational and procedural silos, established hierarchies or bureaucratic categories. Again, such activity might initially take those involved in policymaking out of their comfort zones, but this need not present a major barrier to greater adoption. Many public service delivery projects applying design thinking have been carried out at the local level and have therefore involved efforts to transcend jurisdictional boundaries among governments.

Design thinking cannot be simply slotted into existing modes of policy development. But incorporation can occur and has occurred. We next offer some examples.

Specific Design Strategies and Their Potential Uses in Policymaking

The claim for greater application of design thinking in policymaking is that it will increase the likelihood that public policies will have intended effects. Focusing on the lived experiences of citizens and service-users is expected to promote better policymaking. In the best cases, such policies should lead to implementation of programs that enhance public value and represent good returns on the investment of public funds.

Suppose a government had the goal of improving delivery of support and advisory services to unemployed youth. A design project intended to inform such an effort would start by seeking to identify regularities across individual behavior that suggest the need for more worthy forms of mechanism design and service delivery than currently exist. Such a project might work through questions of this sort:

- Where are the highest areas of youth unemployment at present?
- What factors appear to engender youth unemployment?
- Where is youth unemployment likely to emerge as a problem in the coming years?
- How are job-seeking strategies of the long-term unemployed different from those of the short-term unemployed?
- Under what circumstances does youth unemployment lead to other problems, such as teen pregnancy, substance dependency or criminal activity?
- What do unemployed youth want from service providers?
- What are some success stories of interventions that have assisted youth to gain stable, long-term employment?

This set of questions specific to youth unemployment could be readily adapted to prompt design thinking across a broad range of areas where some form of government support is considered necessary to improve social outcomes.

The application of design thinking—tapping the knowledge of targeted individuals, creating opportunities for significant public engagement of diverse perspectives and prototyping interventions—would require reinvention of key aspects of policymaking. Here we provide a non-exhaustive but illustrative list of specific design strategies and their potential use in policymaking. These are: (1) environmental scanning; (2) participant observation; (3) open-to-learning conversations; (4) mapping; and (5) sensemaking. Our examples suggest that design thinking can indeed be incorporated into policymaking processes, to good effect.

Environmental Scanning

This strategy explores present behaviors of individuals and groups in given localities and the outcomes resulting from those behaviors. It also seeks to identify trends that may influence future outcomes (Fahey and King, 1977). It requires taking stock of a particular situation and

scanning for new inputs, materials, influences and technologies applied in other fields that may be relevant (Etzioni, 1986). Used appropriately, it creates an evidence-based method of gathering, synthesizing and interpreting information that can shift the attention of an organization toward new opportunity areas, threats and potential blind spots. Environmental scanning is intended to fill knowledge gaps and develop holistic understandings of systems. It must include user perspectives. This opens the possibility for the strategy to raise the empathy of policy developers towards end-users of government services.

Environmental scanning casts a wide net, exploring things in different ways and absorbing knowledge from areas not necessarily considered in traditional policymaking processes. Questioning the data and evidence helps policy developers revisit longstanding assumptions and review current policy settings. Information acquired in a scan can be used to create an initial analysis and generate hypotheses about the road ahead. The strategy can be used when considering a new policy area or improving a policy that is currently in place.

The Australian Centre for Social Innovation (TACSI) was established in Adelaide, South Australia in 2009. It was tasked with developing new ideas to assist families in difficult situations and prevent them from coming into contact with crisis services. In 2013, the Victorian Department of Health (VicHealth) partnered with TACSI to explore alternative approaches to grant funding to improve fruit and vegetable supply and access in Victoria. VicHealth understood that for this initiative to gain traction, it would have to find a way to foster innovation amongst NGOs and businesses already providing services to the department. Through the partnership with TACSI, VicHealth was able to reach and speak with a whole new range of potential suppliers across the nutrition sector that agreed to support their approach. Tapping TACSI's ethnographic methods and approaches, VicHealth received advice from people including representatives of the fruit and vegetable industries, researchers and social entrepreneurs. Evidence and data clarified direct links between poor food choices among citizens and the burden of preventable ill health. The issue, however, was that messages about healthy food choices were not getting through to service users. By partnering with TACSI, VicHealth was able to test and challenge some of its most basic assumptions regarding access to healthy food in the community and identify strategies to overcome these.

Participant Observation

Observation refers to the ability to notice significant and seemingly insignificant details in order to gather information. In developing a framework for understanding information processing in problem solving tasks, Newell and Simon (1972) strongly emphasized the importance of task effects on decision behavior. They contended that a theory of problem solving cannot predict behavior unless it encompasses both an analysis of the task and the limits of rational adaptation to task requirements. While environmental scanning facilitates the broad exploration of an issue, observation requires engaging with people encountering specific problems. It can access tacit, otherwise difficult to capture knowledge from subjects (Polanyi, 1966).

Design thinking applies observation to understand people and their behavior in the context of their lives. This can involve observing someone complete a task or engage with a service. The observer accompanies the subject through the steps and may ask the subject to explain what they are doing at each step. Some of the most powerful realizations come from noticing discrepancies between what someone says they are doing and what they are actually doing. Others come from a work-around someone has created but would never think to mention in an interview situation as the process has become normalized. Identifying and understanding user needs can serve as a quick route to efficiency. By designing a policy around the people who will ultimately be service

users, policy developers can eliminate extraneous elements. Observation is particularly useful for understanding the effect that a policy has on marginalized people. In this context—as in many others—empathy is critical to effective observation (Wagenaar, 2014).

In 2011, the former Australian Department of Education, Employment and Workplace Relations launched 'Home to Work' (H2W), a one-year place-based pilot program designed to integrate support and employment services for the most disadvantaged jobseekers in Canberra. Non-governmental project brokers engaged in intensive community consultation to identify common individual and group needs. The participants were drawn from marginalized groups that had experienced consistent difficulties in securing long-term employment. Observation enabled the project brokers to learn about the participant's activities and needs, rather than make assumptions. The methodology of H2W informed development of a tailored menu of assistance options, including monthly counseling, initial employment assistance, mentoring programs and social networking and inclusion activities. On conclusion of the pilot, 64 percent of H2W participants were placed in full-time employment, approximately twice the number normally achieved through traditional methods of service design (Evans, 2012). Participants were also significantly more satisfied with their engagements with government than had been the case in the past.

Open to Learning Conversations

The tendency of most service-producing organizations is to limit choices for consumers and make incremental adjustments. Problems are addressed using standard operating procedures that attempt to maintain predefined notions of order. This is true in all sectors of society, including the public sector. Argyris (1982, 1991) explores this phenomenon in the context of single- and double-loop learning. Single-loop learning suggests that when something goes wrong, people seek alternate strategies that will address and work within present constrained choices. In double-loop learning, the alternate response is to question the existing choice set. Double-loop learning, or divergent thinking, is the route to innovation.

To achieve divergent thinking, it is important to have a diverse group of people involved in the process. Open-to-learning conversations encourage divergent thinking (Martin 2009; Neumeier 2009). Such conversations are less about analyzing existing options and more about the creation of new options and questioning the fundamental basis of existing structures. While this process is non-linear, initial research and exploration are required to provide a structure that enables the facilitator to dig deeper and capture findings from the group. The key to facilitating conversations is to attempt to define and redefine the problem statement based on the feedback and insights drawn from the group. This allows for the challenging of assumptions and preconceived ideas.

One way to facilitate open-to-learning conversations is to ask: "How might we . . .?" 'How' assumes that solutions exist and provides the creative confidence needed to identify and solve unmet needs. 'Might' says that we can put ideas out that may or may not work—either way, there is a learning opportunity. 'We' signals collaboration and building on each other's ideas to find creative solutions together (Martin, 2009).

Earlier, we noted the work of the Australian Centre for Social Innovation (TACSI). In 2009, TACSI was tasked by the South Australian Government with developing an approach to assist families in difficulty and prevent them from coming into contact with crisis services, such as child protection interventions. The result, the Family by Family program, emerged from a co-design process with hundreds of families, framed by the question: "How can a new service enable more families to thrive and fewer to come into contact with crisis services?" (TACSI, 2012). Family by Family is a peer-to-peer learning model that pairs families in need with families who have

overcome hardship. The model puts families at the center and offers something that professional services cannot: human connections and relationships. Following its initial success in Adelaide, with an unprecedented return on investment estimated as $7 for every dollar spent, this program has been extended to New South Wales (TACSI, 2014). The peer-to-peer learning model is now being considered with respect to refugees and migrant resettlement, domestic violence, social isolation and exclusion, substance use, disability and behavioral issues.

Mapping

Mapping can be used to understand how different ideas relate to one another. It has long been used in policymaking to explore the links between mechanism design and implementation (Elmore, 1979). A concept map can be used to develop a conceptual framework to guide evaluation or planning (Trochim, 1989). Such a framework can organize some of what has been learned during previous phases of design processes. Mapping allows the designer to visualize how things connect and spot emerging patterns. This can be done by putting one idea, or user, at the center and then mapping how the other ideas and insights play off it.

Mapping can be used to systematically visualize human experiences and think about steps or 'touchpoints' of a process. In traditional policymaking, problem statements are often not considered in context. Journey mapping communicates the user experience from beginning to end and offers a broader, sophisticated and holistic knowledge of user experience. It can reveal problems and help suggest alternate pathways forward. This can be a very powerful antidote to complacency and a good way to challenge conventional thinking. There are many ways this can be done. For example, if a hospital wanted to improve patient throughput, it would be useful to know the steps involved between when the patient leaves their house, enters the hospital and speaks with the triage nurse, speaks with additional people or hospital staff. Visually mapping experiences such as these can help identify areas where services or processes can be eliminated, streamlined, enhanced or changed. This doesn't need to be an in-depth, detailed representation, but rather a rough sketch of how a process unfolds.

This aspect of design thinking has proved integral to the NSW Health's Clinical Services Redesign Program (CSRP). The CSRP sought to analyze and identify problems in the health system from the perspective of the patient's journey—that is, the end-to-end sequence of all the steps required to provide clinical care for a patient. Following a successful pilot, this approach received funding from the NSW government to roll out a three-year, statewide program. At its peak, the CSRP included 75 separate redesign projects in 60 hospitals (Ben-Tovim et al., 2008). The process began by focusing the scope of the overall project and the make-up of the redesign team. All key individuals and groups were involved in the mapping process. It was understood that mapping must engage staff, management, patients and other forms of external care that patients may receive. The initial mapping session recorded the process itself, not what people thought it was. Recording the patient journey in this way demonstrated the complexity of the situation and subsequently acted as a catalyst to promote systems change. The redesign of the patient journey in NSW led to expansion of the 'day-only' model of care, reform of the waiting times policy, standardization of patient pre-admission and preparation and improvements in operating theatre scheduling.

The results of the CSRP have been impressive, including a 97 percent reduction in the number of patients whose surgery was overdue and a 99 percent reduction in the number of patients waiting more than a year for surgery (MacLellan et al., 2008). These are significant returns on investment. Mapping the service-user journey could be broadly applied across many areas of government activity.

Sensemaking

Karl Weick (1995) defined sensemaking as an ongoing social retrospective process grounded in identity construction, driven by plausibility rather than accuracy. It is an action-oriented process that people automatically go through in order to integrate experiences into their understanding of the world around them. The sensemaking perspective suggests that in organizational settings much latitude exists in the interpretation of situations and events. Sensemaking requires connections to be forged between seemingly unrelated issues through a process of selective pruning and visual organization. Dialogue is critical to sensemaking. Once data and insights have been externalized, say in the form of post-it notes on the wall, designers can begin the more intellectual task of identifying explicit and implicit relationships, physically drawing out these content-affinities through the process of organization. The designer begins to move content around, physically placing items that are related next to each other. All of the content is related in some way, but the important connections are frequently those that are multifaceted and complex.

Once the groupings begin to emerge, they can be labeled and understood. One of the most basic principles of making sense out of data is to externalize the entire meaning-creation process. Content can then be freely moved and manipulated, and the entire set of data can be seen at one time. Implicit and hidden meanings can be revealed by relating otherwise discrete chunks of data to one another and positioning these chunks in the context of human behavior. Sensemaking requires perception, judgment and flexibility.

In New Zealand, the Auckland City Mission launched the Family 100 Project in an attempt to understand the complexity of the repeating cycle of poverty. Over a 12-month period, the team worked with 100 families who were long-term users of the Mission's foodbank. Team members sought to gain a deeper understanding of the lived experiences of families in poverty. One key focus of the Project was to map participants' interactions with a range of agencies to reveal how people navigate a complex service landscape to get their needs met (Hodgetts et al., 2013a). The Project unleashed a range of insights into justice, debt, health, education, employment, housing, food and services and how these areas relate to one another. The Project also gained traction within the judiciary, resulting in a workshop between the project authors and judges (Hodgetts et al., 2013b). With the family as the focus point, the team was able to use these interactions to make sense of the poverty cycle and to recognize areas that could be strengthened to assist families in breaking the cycle. As insights and connections emerge, it is critical that these ideas be captured and developed into small-scale prototypes that can be tested early. This iterative process enables stronger solutions to form as ideas can be refined, tested, trialed and refined again.

Key Considerations

As an evolving concept, design thinking is not without its critics. As with most forms of social innovation, it is a concept that relies on practice to give it meaning. This aligns with Buchanan (1992), who states that "design has no special subject matter of its own, apart from what a designer conceives it to be" (p. 16). It is 'potentially universal in scope.' Concrete descriptions of the concept are of limited use, because the tools, practices and cognitive processes are not used in a vacuum. The value of the approach is difficult to measure given that the benefits of using it depend on how the concept is understood and put into practice in each setting.

Until now, there have been few empirical studies on the actual use of design thinking in the public sphere. Limited understanding raises the risk that design thinking will be implemented for the wrong reasons, or with unrealistic expectations. Similarly, evaluation of implementation efforts from a short-term perspective can result in their being considered a failure as many

intended effects are realized in the long-term. Design thinking requires time, space and authorization to operate. Questions have been raised regarding its applicability to public policy development. But such questions are misguided because they imply that the public service is not open to change. Over the past three decades, public sectors everywhere have undergone significant change. In the process, they have adopted many new frameworks, models and practices based on international trends and experiences. Design thinking, in its purest form, does not fit with mainstream policymaking processes. However, aspects of design thinking are already occurring within the public sector context—and quite successfully. Subsequent chapters in this handbook present a range of examples.

The future effectiveness of design thinking will depend on the user's understanding and intent. It is a time-consuming process and should not be undertaken in pursuit of immediate efficiency gains. In the case of NSW's Clinical Redesign program, the key performance indicators were framed in terms of access to services and efficiency, rather than a balance between performance, quality and safety (Eagar et al., 2008). While improvements were achieved within certain aspects of the system, they were not sustained. For change to occur, design thinking requires leadership and commitment. There is a danger that agencies seeking to develop and adopt more citizen-centered approaches to policymaking will use design thinking simply as a short-term means to an end. While design thinking does sit within the broader gamut of citizen-centered approaches, it is more about empowering passive citizens and understanding their experiences of government policy and services.

Design thinking holds the promise of assisting policymakers to create interventions and services that improve the user experience and enhance public value. It is not a panacea. Nor does it seek to displace or override existing forms of policymaking. The success of the approach is contingent on the diversity of skills and abilities sought within a specific project. It requires curiosity and openness. There are certain instances where traditional approaches to the design and implementation of public policy are necessary and preferable (see, e.g., Rhodes, 2015; Tiernan, 2015). However, design thinking offers an alternative view of how government might interact with and include citizens in its decision-making processes.

In discussing the rise and utility of design thinking in policymaking, it is necessary to consider questions of power—specifically, the extent to which power is shared and the institutional form that sharing takes. If design thinking is used to facilitate more democratic participation, how do designers ensure such participation? While direct democracy may occur at the local level, direct democracy at the national level is rare. And for good reason. If design thinking does become a more established and commonly used part of the policymaking process, that implies a reimagining of the relationship between citizen and state. According to Bourgon (2008), citizens have shifted from passive bearers of certain rights to active members of a social and political community with rights and responsibilities. The role for government, then, is to shift from representing citizens' interests to promoting citizenship and creating spaces for public discussion and integration of citizens' grounded insights across a range of levels of government. Evidence to date suggests that well-designed efforts to involve citizens in policy design can usefully contribute to broader democratic engagement (Ingram and Rathgeb Smith, 1993; Mintrom, 2001, 2003b, 2009).

Looking to the Future

At present, design thinking in public policy is varied and scattered. It is at risk of not being taken seriously. The global rise of design, innovation and change labs represent one response. Various countries and governments around the world are incorporating aspects of design thinking into policy design and implementation. In 2011, the European Commission recommended "the

widespread development of more innovative public procurement through raising awareness of design to policymakers in the public sector" (p. 10). This recommendation was part of a broader strategy seeking to develop strong innovation policies throughout the EU member states. The strategy resulted in a range of cross-country collaborations to measure the public value created by design, integrate design thinking across policy areas, share best practices and improve design management competencies in the public sector. In addition, more than 30 experimental policy labs have now been established in a range of countries throughout the EU.

The institutional forms and models for policy labs vary greatly. What distinguishes them from other forms of government teams or organizations is their adoption of experimental methods to tackle social and policy problems. The most appropriate position will ultimately depend on the specific mission of such an organization and the context within which it operates. In dealing with issues that are cross-sectoral and ill-defined, it would be very difficult for a non-public sector organization to gain the requisite context-specific information required to understand, let alone solve, the problem. This does not mean that it is impossible, but that careful consideration would need to be given to this aspect if it was attempted. If operating from the 'edge' of government, thought must be given to how the policy lab can draw on its strategic advantages while maintaining access to the policymaking authority and impetus of the 'center.' Future work ought to consider whether policy labs should be located purely within the public sector or whether effective partnership or hybrid models could be applied.

For all of their activity and intent, it remains unclear whether policy labs are altering the dominant systems and actually facilitating a different set of outcomes on the ground. The vast majority are dependent on some kind of centralized government funding structure. This factor makes it particularly difficult, if not impossible, to propose radically different ideas, especially to the party or governing body who funds it. If the purpose of a policy lab is to create a safe space for experimentation and divergent approaches, to what extent do the funding arrangements entrench existing divisions of power? In order to be effective in delivering outcomes, it is not an option for policy labs to be apolitical. It is therefore important that such labs take careful note of contextual differences and differences in interpretations of which people suffer or benefit from current policy settings.

There is no doubt that, as sites for promoting design thinking in public policy, policy labs represent a paradox: They are created as part of a system but are there to challenge it. For instance, Lykketoft (2013) points out that creating such labs within an existing organization implies that the organization as a whole is not yet capable of the wanted transformation. In that sense, the role of labs is to create motivation and commitment to design thinking for policymaking. This could also be achieved by partnering with existing co-design organizations or boundary spanning organizations, committed to ensuring best practices in policymaking. A key question remains: How can design processes and capabilities be more integrated into policymaking processes?

Innovation does not exist in a vacuum. It requires authorization, support, flexibility, openness and space. As previously noted, some countries are experimenting with new structures and units that facilitate the public sector's ability to engage the broad range of actors who are relevant to any single issue. Given its potential benefits, we see value in cataloguing best practices in the integration of design thinking into policymaking processes—locally, nationally and internationally. At present, the greatest concentration of design thinking is occurring in Europe and North America. This effort comes in the form of governmental, non-governmental and private sector policy labs, training programs, workshops and conferences. The emergence and diffusion of design thinking labs may represent a fad in public policy. However, labs may also represent an attempt to create a safe experimentation space within policymaking systems. While work is going on in this area, it is worth exploring the proliferation of these labs and what they mean for the future of policymaking.

A major contribution of design thinking is that it forces policymakers to confront the front-line. It implies a fundamental shift from a transactional model of service delivery to a relational one. It doing so, it can enable more human-centered and differentiated sets of practices. But how do we know that these efforts will produce fruitful results? What evaluative work is required? These questions must be approached through the consideration of both policy and management.

Design, by nature, invites social complexity into the policy process. It is necessary to consider how this complexity fits with organizational cultures in government. The desire to mitigate and reduce risk in the public sector can create considerable constraints on actors seeking to introduce and embed change. There may be a failure to value new innovations properly because incumbents attempt to apply them to existing processes and practices (Christensen, 1997). There is often a disjuncture between policy analysis and program evaluation. However, design thinking holds the potential to bridge the divide. In order to conduct relevant policy work in the future, stronger connections must be made between disciplines. Of course, disciplinary boundaries are useful in providing a structure to advance thinking. The risk, however, is that useful components that fall outside the boundaries will be lost or overlooked. To add value, policy designers need to engage and work with people on the ground, such as service managers and clients. They need to pay close attention to insights from evaluation studies. This raises questions concerning existing institutional arrangements. To what extent is it possible to perform these integrations? What institutional changes would likely improve integration?

Conclusion

While policy development is a design activity, aside from some notable exceptions, past discussions have rarely explored the nature of design thinking in public policy. This is something we have sought to remedy here. In this chapter, we have shown how elements of design thinking that have long traditions within social science research can be applied to contemporary policy challenges. We have also explored efforts to translate design thinking into action in a range of different contexts. Design thinking has generated a lot of interest in policymaking circles around the world. The next step will be to understand and explore more fully the public impact that design thinking can have.

Analytically, debate about design thinking in public policy has been largely instrumental, seeking to support policymakers in the shaping of policies to promote design, rather than asking deeper questions about the validity and efficacy of policies. Looking ahead, efforts are needed to determine the conditions under which design thinking seriously improves policymaking. We need to understand when, and under what conditions, early engagement with end-users serves to enhance policy design, program development, implementation and social outcomes. To fully institutionalize design thinking in policymaking processes, careful consideration should be paid to the skills required of policy analysts and how cross-agency and cross-jurisdictional relations could be more effectively managed to support policy development.

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9

UNDERSTANDING POLICY DESIGNS OVER TIME

Layering, Stretching, Patching and Packaging

Michael Howlett, Ishani Mukherjee and Jeremy Rayner

Introduction: Policy Mixes and Designing Over Time

The purpose and expectations of policy design efforts have always been clear (Dryzek and Ripley, 1988; Linder and Peters, 1990a, 1990b). Design is an activity conducted by a number of policy actors in the hope of improving policymaking and policy outcomes through the accurate anticipation of the consequences of government actions and the articulation of specific courses of action to be followed to achieve policy goals. This is to be accomplished by improving assessments of both the theoretical effectiveness and the feasibility of policy alternatives (Majone, 1975; May, 2005; Gilabert and Lawford-Smith, 2012; Linder and Peters, 1990a, 1990b).

Each 'policy,' however, is a complex 'regime' or arrangement of ends and means-related goals, objectives, instruments and calibrations that exist in a specific governance setting and change over time. Central concerns in the design of policies are thus related to answering questions about how these mixes are constructed, which methods yield superior results and what the likely result of their (re)design will be. Understanding these aspects of policy formulation and design, and synthesizing knowledge about them into a small number of precepts that policy formulators can follow in their work, has always been at the forefront of policy design work.

However, these considerations must take into account the fact that 'policies' are typically 'bundles' or 'portfolios' of policy tools arranged in policy mixes that have evolved over time, such that these bundles are typically the outcome of distinctive processes of policy change, to which elements are added and subtracted over time. Early work on policy design did not always take this to heart. Clarifying the principles enunciated and articulated by early policy design proponents and applying them to policy mixes, and distinguishing between intentional and unintentional processes of policy change in the development of such bundles, have been central features of contemporary policy design study and efforts to move policy design processes and understanding forward (Howlett and Goetz, 2014; Howlett and Rayner, 2006).

While policy designs can and should be considered in the abstract, understanding how policy change processes create and modify mixes over time is critical to evaluating any particular policy mix's chance of successfully attaining its goals once put into practice (Jacobs, 2008). Adding the notion of policy 'patching' to considerations of intelligent design, for example, better connects design considerations to practice than do many earlier discussions firmly centered in

the 'planning' orientation. These often rely upon ideas about the ease or the need for wholesale policy replacement that do not exist in practice.

The Temporal Dimension of Policy Design: Layering and Intentionality

Each 'policy' can thus be seen as complex 'regime' or arrangement of ends and means-related goals (more abstract), objectives (less abstract) and settings (least abstract). These include:

1. a set of general goals and means—such as ushering in sustainability and a preference for particular means of doing so (e.g., state or market-driven means);
2. a set of objectives and preferred mechanisms—such as fostering a transition to green technologies and the use of particular approaches (e.g., regulations or subsidies) to accomplish this end;
3. a set of very specific 'settings' and calibrations—such as promoting renewable wind-power energy through the provision of subsidized power purchase rates of a specific level or order.

(Cashore and Howlett, 2007)

But how are these mixes constructed, and what is the likely result of their (re)design?

While the study of (re-)design efforts is at an early stage in the policy sciences, a common theme in the literature is the pervasive presence of institutional obstacles to making a new start and the difficulty of preventing integrative strategies from simply adding new layers of complexity, duplication and ambiguity to already sub-optimal mixes of goals and instruments.

This is because, like institutions in general, policy mixes emerge through four processes: 'drift,' 'conversion,' 'layering' and 'replacement' (Beland, 2007; Thelen, 2003, 2004; Hacker, 2004; Stead and Meijers, 2004). These differ in terms of their ability to integrate policy instruments in effective or 'smart,' integrated mixes with coherent goals and consistent means.

- *Layering* is a process whereby new goals and instruments are simply added to an existing regime without abandoning previous ones, typically leading to both incoherence amongst the goals and inconsistency with respect to instruments used.
- *Drift* occurs when the goals of the policy change without changing the instruments used to implement them, which then can become inconsistent with the new goals and most likely ineffective in achieving them (Tornvlied and Akkerman, 2004).
- *Conversion* involves changes in instrument mixes while holding goals constant. If the goals are inconsistent, then changes in policy tools may reduce levels of implementation conflicts or enhance them but are unlikely to succeed in matching means and ends of policy.
- *Replacement* occurs when there is a conscious effort made to create or fundamentally restructure policies so that they are consistent and coherent in terms of their goals and means orientations (Eliadis, Hill and Howlett, 2004; Gunningham and Sinclair, 1999).

Layering, of course, is a concept developed in the neo-institutional sociological literature by some of its leading figures, namely Beland (2007), Thelen (2004), Hacker (2004), Beland and Hacker (2004) and Stead and Meijers (2004), to explain the pattern through which social and political institutions have evolved over long periods of time. As applied to policymaking, 'layering' connotes a process in which new elements are simply added to an existing regime, often without abandoning previous ones, so that policies accrete in a palimpsest-like fashion (Carter, 2012). This can create policy portfolios or mixes that contain various incompatibilities, tending to frustrate the achievement of policy goals.

Many policy mixes have suffered from layering. The existing evidence shows that many existing policy regimes or mixes have developed haphazardly through processes of policy layering or repeated bouts of policy conversion or policy drift, in which new tools and objectives have been piled on top of older ones, creating a mixture of inconsistent and incoherent policy elements. For example, efforts at the integration of various resource management regimes have failed when powerful interests are able to keep favorable goals, instruments and settings, such as unsustainable fishing or timber cutting quotas that support an industry, and limit the impact of new policy initiatives (Howlett and Rayner, 1995; Rayner et al., 2001). Most policy initiatives deal with already created policies that are limited by historical legacies and can be hampered due to internal inconsistencies that reforms and revisions attempt to address and correct. In this case, legacies from earlier rounds of decision-making affect the introduction of new elements that conflict with pre-existing policy components. Policy development strongly marked by layering in this way is typically seen where new elements are added to the policy mix without the removal of older ones and existing elements are stretched to try to fit new goals and changing circumstances (van der Heijden, 2011).

This kind of contextual 'lock in' can impact the formulation process by restricting a government's ability to evaluate alternatives and plan or design in a purely optimal instrumental manner (Howlett, 2009; Oliphant and Howlett, 2010). It can easily lead to internal contradictions emerging between tools and goals within policy mixes (Hacker, 2004). Mixes of policy elements that emerge over long stretches of time as a result of successive policy layering are also often incongruent. An example of such incongruence within a policy mix can be found in the US Clean Air Act, the development of which has been heavily analyzed since the 1970s (Ackerman, 1981; Greenstone; 2002, among others). The 1977 amendments to the Act created a 'new source bias,' as all new coal-powered plants were required to install scrubbers even if they used low-sulfur coal. This rule undermined the comparative advantage of 'cleaner' coal as the amendments raised the cost of shifting to new, less polluting plants and extended the economic lives of older, more polluting plants that did not have to shoulder the added cost of scrubbers. This is only one small example of a general situation where the initial logic of each decision matching policy tool and target may have been clear, but through multiple layering processes they gradually transformed over time into incongruent mixes (van der Heijden, 2011; Bode, 2006; Howlett and Rayner, 1995; Orren and Skowronek, 1998; Torenvlied and Akkerman, 2004; Hacker, 2004).

Drift is also another, less common process in which goals shift without necessarily altering the instruments already in place. This is the case with tax benefits not linked to inflation, which may over time become irrelevant despite not having been altered themselves in any way. This also often does not help integrate policy goals and means.

Conversion is another less frequent occurrence that has characterized some policy areas, such as major health policy reform efforts. In a conversion scenario, the purpose of earlier arrangements is changed to suit new ones while leaving most, if not all, of the pre-existing structure in place (Hacker, 2004). The lack of a sustained and focused effort on the part of policymakers in ensuring that new purposes and old means are compatible, however, can easily lead to sub-optimal or disappointing results.

As for replacement, this is often written about as if it was a common occurrence. Notions of 'smart' or 'optimal' policy design in the existing policy literature (Gunningham, Grabosky and Sinclair, 1998; Gunningham and Sinclair, 1999; Eliadis, Hill and Howlett, 2005), for example, emphasize principles that require a replacement scenario to exist. These include:

1. The importance of designing policies that employ a mix of policy instruments carefully chosen to create positive interactions with each other and to respond to particular, context-dependent features of the policy sector;

2. The importance of considering the full range of policy instruments when designing the mix rather than assuming that a choice must be made between regulation and markets;
3. In the context of continuing pressures on governments to do more with less, to suggest the increased use of 'alternative' tools such as incentive-based instruments, various forms of self-regulation by industry and policies that can employ commercial and non-commercial third parties to achieve compliance, such as suppliers, customers and a growing cast of auditors and certifiers; and
4. Finally, new network-appropriate procedural policy instruments such as information instruments, and various techniques of network management such as the use of advisory committees and public consultations, are seen as particularly important to meet the challenges of governance.

(Howlett and Rayner, 2004)

Despite the common appearance of replacement in policy proposals and analyses, however, very few design processes begin *de novo*. Examples of new policy 'packages' in many areas, from welfare policy to natural resources, exist only historically, reflecting times before which there was no previous history of a national policy response to a perceived policy problem. For example, the United States (US) Clean Air Act (CAA) (first enacted in 1970) was the first major federal air pollution legislation in the US that established a national benchmark for ambient sulfur dioxide ($SO_{2)}$ (Schmalensee et al., 1998). Such examples of new policy packages are understandably few. Although other policy instrument groupings could theoretically be more successful in creating internally supportive combinations (Howlett and Rayner 2007; Grabosky 1994; Gunningham, Grabosky and Sinclair, 1998; del Rio, 2010), it may be very difficult to accomplish or even propose wholesale change, and designs instead often focus on reform rather than replacement of an existing arrangement.

Design Patches vs Packages

Recognizing the drawbacks of layering, conversion and drift, policymakers and critics have increasingly turned to the promotion of complex policy mixes that have been designed, rather than incrementally developed (Meijers, 2004; Briassoulis, 2005; Meijers and Stead, 2004). The explicit goal of these new designs is optimization and the avoidance of contradictory or conflicting mixes of policy tools (Gunningham, Grabosky and Sinclair, 1998; Gunningham and Sinclair, 1999).

Optimization in the face of a pre-existing mix, however, is more difficult than when circumstances allow a wholesale replacement or creation of an entirely new mix. It requires an additional level of knowledge of instrument-goal interactions and usually leads to design through 'patching' rather than 'packaging' (Howlett and Rayner, 2013). That is, in addition to questions relating to the logic of integration of policy tools, the evolution and history of existing policy mixes are also of concern as policymakers and formulators intending to enter into design processes must grapple with these legacies.

While earlier work on design processes tended to suggest that design would always occur in spaces where policy packages could be designed '*en bloc*,' it is now recognized that most design circumstances involve building on the foundations created in another era, working within already sub-optimal design spaces (Howlett and Rayner 2013). In such situations of significant policy legacies, "designers often attempt to 'patch' or restructure existing policy elements rather than propose completely new alternative arrangements even if the situation may require the latter for the sake of optimally enhancing coherence and consistency in the

reformed policy mix" (Howlett and Mukherjee, 2014, p. 63; Gunningham and Sinclair 1999; Thelen et al., 2003; Thelen, 2004; Eliadis et al., 2005). Hence, even where intentionality to systematically design may be high, it may only be partial in the sense that patching and not replacement is on the table.

A key first distinction among design processes therefore concerns whether they involve 'packaging' a new policy mix or 'patching' an old one. Patching or 'smart layering' often is thought to be inherently sub-optimal; patching in itself is not 'non-design,' but rather constrained design as a new layer is formulated in an effort to overcome anomalies or problems existing with earlier mixes (Howlett and Rayner, 2013).

Policy design scholars are thus very interested in processes, such as how policy formulators, like software designers, can issue such 'patches' to correct flaws in existing mixes or allow them to adapt to changing circumstances (Howlett and Rayner, 2013). They are also interested in related subjects, such as how policy experiments can help reveal the possibilities of re-design (Hoffman, 2011) or how building temporal properties into tool mixes—'adaptive policy-making' (Swanson et al., 2010)—can make designs more flexible or resistant to shifting conditions (Walker et al., 2010; Haasnoot et al., 2013).

Patching vs Stretching

Patching can be done well if governments possess the capacity to do so but can be done poorly if they do not. An example of such poor patching is policy '*stretching*' (Feindt and Flynn, 2009). This is where, operating over periods of decades or more, elements of a mix are simply extended to cover areas they were not intended to at the outset. While in itself not remarkable, the consequences of layering mix elements over the long term can be very significant. Here, as Kay (2007) suggests, is often found a process of 'tense layering.' That is, repeated bouts of layering can lead to both incoherence amongst the goals and inconsistency with respect to the instruments and settings used in a policy area. Legacies from earlier rounds of decision-making will affect the introduction of new elements, which are very likely to conflict with pre-existing policy components. These tensions between the old and the new layers serve to drive policymaking forward so that even in more or less stable periods changes will continue to be made to policies in the effort to reconcile these tensions.

'Stretching' is especially problematic, as small changes in the mixture of policy elements over a decade or more can create a situation where the elements can fail to be mutually supportive, incorporating contradictory goals or instruments whose combination creates perverse incentives that frustrate initial policy goals. When these problems are identified, they often set the stage for further rounds of tinkering that may make them worse (Feindt and Flynn, 2009). Stretching and poor patching efforts can create a particular form of 'tense layering' (Kay, 2007), which occurs when repeated bouts of layering lead to both incoherence amongst the goals and inconsistency with respect to the instruments and settings used in a policy area.

Stretching is more problematic as a design process than patching because the addition of new goals or objectives increases the risk of incoherence, as does the introduction of policy instruments that suppose new kinds of implementation preferences, for example, when a market orientation is introduced into an instrument set that has been based on a regulatory approach (Howlett and Rayner, 2007). Inconsistencies also arise where the means work at cross purposes, "providing simultaneous incentives and disincentives towards the attainment of stated goals" (Kern and Howlett, 2009, p. 6). And incongruence occurs when an otherwise consistent mix of instruments fails to support the goals.

Stretching and poor patching efforts serve as the breakpoint between design and non-design activities of government. Using the case of British food policy, Feindt and Flynn (2009), for example, describe a situation of institutional stretching where

> concerns about food supply and high productivity have been overlaid with policies addressing food safety, the environment, quality foods, obesity and climate change. As a result, food is increasingly situated in multiple orders. These reside both in the political system and the food system, creating a hybrid institutional context. The resulting tensions in turn create opportunities for more new ideas and actors to move in, fueled by a plurality of social constructions of food. Also, each new layer re-adjusts the power balance and necessitates re-interpretations of older policies.
>
> *(p. 386)*

In cases such as these, layering introduces progressively more severe inconsistencies ('tensions' between design elements) and incongruencies (tensions between layers) so that policymaking and formulation take on an increasingly complex complexion and goal attainment becomes increasingly harder to plan and achieve.

Layering and patching thus have two sides. On the one hand, negative stretching or destructive layering exacerbates tensions between regime elements and more politicized or less instrumental forms of policymaking and outcomes. However, layering can also have a positive side and help ameliorate or reduce tensions through 'smart' patching.

Conclusion: Temporal Lessons for Erstwhile Policy Designers

All of these design efforts can be done well or poorly but reflect some wholesale or partial effort to match policy goals and means in a sophisticated way linked to improving outcomes.

There is no guarantee, however, that an optimal policy mix will result from a (re)design effort. This would only occur if a government had enough capacity to be able to adopt a governance strategy and set of policy tools likely to lead to a sustainable socio-technical transition and avoid the pitfalls of policy layering while so doing. Layering is always the most likely outcome because it is a kind of 'default' option when capacity is low and poor choices of strategies and tools are made. Integration requires the most capacity (and the most successful) effort and is therefore the most difficult (and hence least likely) outcome. Drift and conversion remain strong, sub-optimal possibilities.

Operating over decades or more, processes such as policy 'stretching' (Feindt and Flynn 2009), in which elements of a mix are extended to cover areas they were not intended to at the outset, or policy 'patching' (Howlett and Rayner 2013); additional elements added to a mix in order to bolster existing elements are responsible for characteristic configurations of policy mixes. Each process poses its own problem to a new generation of policymakers. 'Stretching' is especially problematic, as incremental changes in the mixture of policy elements over a decade or more can create a situation where the elements can fail to be mutually supportive, incorporating contradictory goals or instruments whose combination creates perverse incentives that frustrate policy goals. When these problems are identified, they set the stage for further rounds of tinkering that may temporarily solve the problems or may make them worse. Incoherence occurs where there are contradictions between these elements (Feindt and Flynn, 2009).

This last point raises another area of interest in current design studies, that of the basic mode or style of policymaking best suited to realizing policy designs. An important insight in this regard is that designers can recognize and manipulate the relationships involved in

processes such as layering, drift and conversion, just as they can those related to replacement and exhaustion.

Hacker (2004), for example, has argued that layering, in many ways the simplest way of changing a policy mix, is a process that can ultimately induce conversion. This is because, as new instruments and goals are simply added into the mix without abandoning the previous ones, new possibilities for relating goals to instruments open up. Drift, on the other hand, may be deliberately used to engineer a crisis in which replacement becomes a real possibility as the impact of a policy mix diverges ever more obviously from that intended by its original designers, shedding political support along the way. Layering may have a similar outcome while employing the opposite political mechanism when a new instrument, originally a minor part of the policy mix, gradually assumes prominence, perhaps as the result of setting or calibration changes, and attracts defectors from other instrument constituencies. In such situations, designers can attempt to *patch* or restructure existing policy elements rather than propose alternatives *de novo* in a new package of measures.

There is a strong tradition in the design literature to restrict discussions of design to situations characterized by processes of replacement and exhaustion. Policy *packaging* of this kind, which deliberately seeks to exploit synergistic relationships between multiple policy instruments, was the explicit or implied preference in most earlier efforts to promote enhanced policy integration and coherence in designs across different policy domains (Howlett and Rayner, 2013).

However, recognizing that layering, conversion and drift can also be 'intentionally' designed—much in the same way as software designers issue 'patches' for their operating systems and programs in order to correct flaws or allow them to adapt to changing circumstances—is a critical insight into design processes with which contemporary design studies is beginning to grapple. Distinguishing between policy packaging and policy patching as two methods of attaining the same goal—the heightened coherence, consistency and congruence of complementary policy elements coupled with a better fit between tools and their context—is a needed step in order to move beyond older principles of parsimony and the inexorable use of less coercive tools, and towards enhancing the ability of policy formulators to deal with the very common class of policy problems that demands complex governmental responses and the situations in which they exist.

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PART 3

Policy Designers

Agency and Actors

10

THINKING OUTSIDE THE BOX? APPLYING DESIGN THEORY TO PUBLIC POLICY

Mark Considine

Design is a now popular term for creative problem solving, and its embrace includes everything from furniture to public institutions (Goodin, 1996; Ostrom, 1990). It speaks to an expectation that creativity should inform certain kinds of decisions. It is also true that the research literature on design suggests an activity closely related to formal decision-making but somewhat different to it (Alexander, 1982; Dorst, 2008). The designer is thought to be engaged in an open process of inquiry and to be able to 'think outside the box.' Public policymaking, by contrast, is often seen as more cautious, perhaps incremental, and more circumscribed by the risks of failure. In this chapter, I contend that there is an important common ground between the two accounts of decision-making and that a rethinking of the nature of policy expertise from the perspective of design theory enables us to incorporate a number of key attributes from the design field to strengthen our understanding of high-level policymaking skills. The central argument is that the policy designer's capacity to play with new possibilities or scenarios and her emotional resilience plays a role in the high-level expertise needed to respond creatively to complex problems. This has been acknowledged in the policy literature in a general way by Lasswell (1951) and more explicitly by March (1972). Their earlier observations pointed to the importance of forms of creativity that come from intuitive knowledge and forms of wisdom that cannot be explained by the standard deductive models. March (1972, pp. 424–5) asks, "How do we escape the logic of our reason?" and answers with the recommendation that we explore the role of playfulness as "the deliberate, temporary relaxation of rules in order to explore the possibilities of alternative rules." Less work, however, has been conducted that incorporates work from cognitive science and other decision researchers to generate a robust research agenda concerning the particular expertise of policymakers.

Perhaps the best-known example of this relatively weak uptake is seen in the case of 'prospect theory,' a set of insights first developed by psychologists Daniel Kahneman and Amos Tversky (Kahneman and Tversky, 1996; Tversky and Kahneman, 1974), for which they won a Nobel Prize. Their account of actor decision-making uses compelling experimental evidence to show that actors will frame outcomes differently depending upon whether they see themselves as being in a domain of loss or of gain. Such actors will tend to assume more risk if they feel themselves to be in a domain of loss. These framing structures have a powerful impact on the actor's calculation of her welfare and of the cost-benefit of any decision being contemplated. Mercer (2005, p. 2) has shown that despite the major impact of prospect theory in other social sciences, political science

accounts for the smallest number of citations and "only among international relations (IR) theorists who study international security." For example, Shapiro and Bonham (1973) and Rosati (1995) demonstrate that prospects can explain the choices available to international actors. There are a number of compelling reasons for this, including the fact that political science has generally found it more difficult to extrapolate experiments based upon individual actors to explanations of complex organization decision-making of the type usually found in public policy.

This has not prevented some progress being made, however. Lau and Redlawsk (2001), for example, use the heuristics framework from cognitive science to explain the choices of voters in a mock presidential election campaign. They show that heuristic 'shortcuts' of the type discovered by what they call the 'cognitive revolution' work very differently for those voters with greater interest and knowledge of politics than for the less sophisticated for whom "the road to cognitive shortcuts may prove a dead end" (Lau and Redlawsk, 2001, p. 969).

The work of Herbert Simon (1955, 1957, 1985) on 'bounded rationality' (see also Jones 2001, 2003) provides an important bridge between these cognitive models and the world of public policy. His behavioral model of choice and his collaboration with March (March and Simon, 1958) on behavioral organization theory shows how processes hold and manage many of the responsibilities usually attributed to rational calculation. But as Jones (2003) observes, a key element in distinguishing decisions based on routine and those involving careful consideration and learning is time. "The more time a decision maker spends on a problem, the more likely his or her understanding of the problem will approximate the actual task environment and the limitations of cognitive architecture fades" (Jones, 2003, p. 398).

The distinction between the analytical and rule-bound and the more imaginary, emotional and perhaps innovative forms of problem solving can also be seen as an outcome of somewhat different intellectual starting points. As Dunn (1988, p. 720) points out, there is a long tradition of research dealing with the subjective basis of public policy. Most of this literature considers the likelihood that decision-makers will experience 'eye of the beholder' bias of one kind or another. Much less work has been done to evaluate the way policy expertise may be informed by cognitive styles that may actually improve comprehension, responsiveness and the capacity to innovate.

As is well known, many accounts of decision-making begin with a consideration of choice and optimization, calculated comparisons of options and the various constraints upon these that are imposed by the context in which decisions need to be made. The standard accounts widely discussed in the policymaking literature (see e.g., Bobrow, 2006; Dye, 1972) consider these issues under the heading of 'policy process models,' which range from rational choice, to incrementalist accounts, to structuring and discourse models. The treatment of expertise and the role of experts are different in each approach. In the rational choice models, there is an expectation of rigorous and open appraisal of problems and possible solutions, backed by data gathering and the use of forecasting technologies (see e.g., Laver, 1979). In organizational process (see e.g., Allison, 1971), the skills and dispositions involve an appreciation and capacity to negotiate the norms and cultural practices of the organization. And in a variety of the structuring models, there are demands for high-level skills in framing, translating and communicating issues and interests (Brunner, 1986).

If we take these general conditions and apply them to concrete cases of actual theoretical frameworks and models such as the Institutional Analysis and Development and Advocacy Coalition Framework, we see that despite some important differences, the frameworks share a desire to explain why actors do as they do, what constrains them and why outcomes follow the path they do. As Schlager (1999, p. 234) argues, "each framework posits the individual as the motivator of action," but they propose different variables to explain what it is that structures the work that actors do. For some (see e.g., March and Simon 1958; Simon 1955), the structuring is evidenced in the type of information the individual has at hand, while to others the existence of group

norms acts as both a constraint and motivator (Bailey, 1977; Geertz, 1973). And in theories dealing explicitly with policy innovation, the best-known approaches (Coleman, Katz, and Menzel, 1957; Damanpour, 1991) focus on channels of influence and the structure of communication between actors who are themselves treated as "totally undifferentiated" (Berry and Berry, 1999, p. 173).

In contrast, design may be thought of as starting off with a more individual, even biographical, vantage point and thus may express the identity of the designer as much as the context or problem being addressed (Valkenburg and Dorst, 1998). Two expert designers will be expected to respond to a common challenge very differently, producing 'signature' solutions. This is a different expectation from that which defines other forms of expertise. We do not necessarily expect engineers and surgeons to differ so markedly in their proffered advice. Indeed, the practice of obtaining a second opinion speaks directly to the importance of consistency.

The designer's mandate explicitly promotes the potential for outcomes that are surprising (Lawson and Dorst, 2009, p. 10) and that employ imaginative skills with a "basically irrational nature" (Alexander, 1982, p. 281). At the heart of this claim is the idea that some expertise involves an ability to recognize solutions and intuit outcomes to problems. For example, in *The Functions of the Executive*, Chester Barnard (1938) emphasizes 'non-logical processes' and gives the example of an intuitive accountant he knew who, in the words of Donald Schon (2001, p. 196), could "take a balance sheet of considerable complexity and within minutes or even seconds get a significant set of facts from it." Two generations later, Jim Collins (2001, p. 11), in his acclaimed *From Good to Great*, makes exactly the same point about the importance of an intuitive way of seeing the world: "we all have strengths in life and one of mine is the ability to take a lump of unorganized information, see patterns and extract order from the mess—to go from chaos to concept."

It seems likely that this capacity to employ high-level pattern recognition to locate potential strategies, including innovative ones, involves some mix of the rational and non-rational aspects of cognition. We also know that emotion and especially positive affect is associated with the performance of creative tasks (Isen, 2004; Isen and Means, 1983). How might these broader insights be harnessed to a more detailed understanding of the particular demands of successful decision-making in the public policy environment?

A critical step in this process is to separate the issue of purposiveness from the strict requirements of goal-seeking behavior. In Anderson's (1986, p. 64) words, "judgment-decision theory has typically taken goals more or less as givens . . . but this has led to slighting of motivation, which is the foundation of purposiveness," and "in a very real sense, therefore, people do not know their own minds. Instead, they are continually making them up. Knowledge and belief are not static memories, but typically involve active, momentary cognitive processing" (p. 89). This is also what Schon (1985, p. 21) has in mind when he observes that "we cannot say what it is that we know. . .. Our knowing is ordinarily tacit, implicit in our patterns of action and in our feel for the stuff with which we are dealing." A key requirement regularly cited in the research literature is to be able to imagine a decision process in which goals are outcomes rather than driving determinants (Cohen, March, and Olsen, 1972; Lindblom, 1959, 1968). As March (1972) and others have shown, a model that assumes that goals precede action is often found to be factually wrong. The choice behavior and actions of decision-makers "is at least as much a process for discovering goals as for acting on them" (March, 1972, p. 420). The antidote to excessive rationality is to consider the role of playfulness—or even of foolishness in March's (1972, p. 423) formulation.

The various discussions of design in the decision-making literature feature either a preference to define design as part of the methodology for the *search* for alternatives during the rational process for considering how to solve a problem, in which case it can be considered a variant of

the choice model, or to define design as a fundamentally creative form of deliberation, which operates with different processes to those of rational choice. It is certainly true, as Joedicke, Mattesius and Schulke (1970), Alexander (1982), Schon (1985) and others have remarked, that in most theories of decision-making, there has been an underestimation of the creative elements and an overestimation of the rational domain, but this might be explained by the ease with which one can define and model the rational when compared with the creative.[1] It might have been predicted that an emerging science of decision-making would make quicker progress in the study of rational deliberation than in formulating an account of the role of creativity. To understand the work of experts, it is necessary to answer the question posed by Alexander (1982, p. 285): "to what degree can we study and understand creativity . . . and reproduce the creative process in any meaningful way?" One could add, to what extent in doing this can we still enjoy those aspects of other models of policymaking that offer strong ways to evaluate actions and compare solutions without either destroying creativity or allowing its free reign to generate unviable risks? The first step in this direction is to consider what research on expertise has to say about the way high-level professionals conduct themselves when making decisions. This points us to an account of the way data and experience are organized and stored in memory and certain known processes for its recall and use in demanding situations. In this respect, the work of Kahneman and Tversky is particularly useful to augment and deepen our understanding of decision-making in the context of policy.

Expertise

Tversky and Kahneman (1974, p. 1124) show that "people rely on a limited number of heuristic principles which reduce the complex tasks of assessing probabilities and predicting values." Their work (Kahneman and Tversky, 1996, p. 583) involves the "recognition that different framings of the same problem of decision or judgment can give rise to different mental processes." Such processes also involve common causes of error by decision-makers. The three most common heuristics are 'representation,' where people estimate the probability that an event (or person) belongs to a given class or group; 'availability,' which rests on the use of recent or prominent examples to judge plausibility; and adjustment from an anchor, or 'anchoring,' which is the use of a known starting point to estimate a future position. These mental shortcuts are all "highly economical and usually effective," but they may also "lead to systematic and predictable errors" (Tversky and Kahneman, 1974, p. 1131).

For example, the 'availability' heuristic suggests that the more one can remember certain events, the more likely one is to expect them and to look for them again and again. For instance, media coverage of leadership failure by politicians will increase a tendency to look for failure and to make this the basis for future decision-making. Failure is memorable. From an empirical perspective, "the ease with which instances come to mind" (Kahneman and Tversky, 1996, p. 582) is something that can be tested—including in interviews. This suggests that some events, issues and experiences likely to influence decision-making will have greater memorability and therefore find a priority place in the memory of decision-makers.

The representation heuristic refers to a decision-maker's ability to classify an event as similar to others s/he has experienced or to classify actors as resembling other actors they have known—"so a politician of erect bearing walking briskly to the podium is likely to be seen as strong and decisive" (Kahneman and Tversky, 1996, p. 582).

Heuristics reduce information processing time and provide an analytic shortcut. One does not have to consider a larger body of data if one of these heuristics provides a means to recognize a pattern quickly. All three heuristics can therefore be thought of as parts of a structure through

which to estimate the capacity of decision-makers to recognize patterns in data and to do so in a way that significantly cuts processing time while assuring acceptable levels of accuracy.

As a partial resolution of the potential conflict between these accounts of memorability and the more conventional theories of decision-making that rely upon transparent forms of option search and assessment, dual-processing theories assert that both modes are needed for much real-world decision-making—automatic or memorized processing that is beyond conscious control and analytic processing (Dane and Pratt, 2007). While this helps avoid a dichotomous account, it may only serve to delay the point at which one has to account for non-rational factors.

While most of the research concerning memorability tends to focus upon shortcuts in the processing time used to consider complex data, there is also a part of this formulation that considers the development, storage and recall of action strategies. Having a strategy ready to use and being able to adapt it to new circumstances involves two different cognitive moves. The first is presumably a recall skill that could be modeled in a relatively mechanistic manner in the style of computer chess. But linked to forms of forward thinking, such expertise also begins to look like the skill of anticipation. This is because the selection of a good strategy always involves a premonition of its likely impact, and this skill can only be developed by recalling previous occasions when similar actors were presented with comparable circumstances. Anticipation therefore refers to a decision-maker's capacity to search forward. To be creative is presumably to know how to search forward in ways that reflect what the past has taught but is not reducible to that alone.

One of the things that is commonly associated with anticipatory capacity and with forms of expertise is long experience. More time to learn from different iterations of the policymaking process is known to improve judgment. In part, this is another version of the idea that experience provides an individual actor with a kind of longitudinal experiment in which different options get tested against a set of repeated challenges. Having 'been there before' is thought to equip decision-makers to manage both the technical and emotional aspects of major decisions. Of course, if one assumes that a characteristic of such decisions may be that they are either unique or 'wicked' in nature, then by definition, no one has previously encountered them. So in this case, the insight yielded by experience may be a type of "referred expertise" or "expertise taken from one field and applied to another" (Collins and Evans, 2007, p. 64). Cognitive science and experimental psychology provide some support for this idea. Bilalić, McLeod and Gobet (2009) developed a test of chess experts of different levels of competence and framed problems that took them outside their areas of specialization. They showed that "with the absence of familiarity (high specialization), the problem solving strategies of super experts (Grand Masters) and ordinary experts resemble each other" (Bilalić, McLeod, and Gobet, 2009, p. 1135).

By creating opportunities for decision-makers to simulate demanding choice and planning situations, training and education programs seek to deepen some aspects of expertise—or at least to map the path by which such expertise proceeds. Obviously, the most potent challenge to such a method is that the classroom is not a real-life situation and, knowing this, the decision-maker will probably react differently. The solution is usually to provide realistic case studies, scenarios and opportunities for gaining field experience under guidance. Case studies and scenarios provide a simulation heuristic that helps counter the 'availability bias' in many decision-makers (Considine, 2005). Availability, as we saw above, refers to the tendency to use information that is easy to recall (memorable), rather than more subtle or difficult to remember. The case or scenario method aims to challenge and perhaps transform "mental models and beliefs to inform and stretch strategic thinking" (Healey and Hodgkinson, 2008, p. 577). The notion of mental models (Johnson-Laird, 1980, p. 98) is that of an internal representation "that mirrors the relevant aspects of the corresponding state of affairs in the world."

It must be assumed, however, that mental models are resistant to change (Sloman, Love, and Ahn, 1998). As Schon (1985, p. 27) also observes, "systems of intuitive knowing are dynamically

conservative, actively defended, highly resistant to change." So, cases and scenarios may run the risk that those devising them will see the world in a particular way and that the experience of learning from cases and scenarios will tend to reflect existing models or status quo thinking. One counter is therefore to "introduce novel outsider perspectives and diverse information sources at the early stages of scenario generation" (Healey and Hodgkinson, 2008, p. 578). But note that in doing this, we may further change the extent to which the scenario reflects real-life conditions for the decision-makers, an environment that is itself likely to be deeply inscribed by conservative practice.

The desire to conceptualize a creative form of decision-making is therefore in tension with the demand that policymaking also be realistic and well grounded in the conditions and values of the day. Simulated experience has some promise as a way to ground new thinking but is also risky if those constructing case or scenario materials embed too many assumptions from a prevailing normative frame.

Emotions

One important bridge across this divide between embedded and more open-ended thinking is provided by work on the role of emotions in decision-making. In addition to engaging actors in the factual universe of a given case or policy problem, an account of the creative decision-making methods may need to engage the emotional responses and priorities of stakeholders and participants. Designers promote this idea as a form of empathy and 'feel for the situation,' but we have only skeletal accounts of what this actually means.

Research on the role of emotions shows that they probably impact decision-making in several common ways. Decision prompts that have the strongest influence on actors are those that elicit an emotional response, giving the 'jolt needed' to spur decision-makers into action. Risky decisions also stimulate problematic emotions such as worry, fear, dread and anxiety. The key to getting an emotional response, either positive or negative, from decision-makers is known to be the "vividness with which those (future) outcomes are described or mentally represented" (Healey and Hodgkinson, 2008, p. 579). Creating a sense of optimism among decision-makers is unlikely to foster creativity if such optimism flows from a common tendency for those working in groups to construct "overly optimistic scenarios that do not adequately account for negative events, falling foul of the so-called positivity bias" (p. 579). Preparing decision-makers to be more comfortable with uncertainty and with different possibilities builds emotional resilience as well as flexible thinking. "Simulating several plausible scenarios makes it apparent that credible alternative futures exist, thus challenging prior beliefs in a single future" (Healey and Hodgkinson, 2008, pp. 576–7).

We can understand that experts bring a trained capacity to quickly appraise data and see patterns; they do this by engaging events and emotions that are organized heuristically in long-term memory. If they have a creative capacity, it must therefore be explained by the characteristic ways in which they exploit this practical and emotional store of experience without being trapped by it. This suggests ability to self-surprise, unless like social systems the expert is allowed but one 'branching point' and thereafter exploits the increasing returns of suboptimization (North, 1990; Pierson, 2004). The path to more creative decisions suggests both a trained capacity to consider a range of novel and surprising approaches and to do so with some form of emotional flexibility in the face of anxiety and risk. March (1972, pp. 426–7) also says we can treat intuition as an alternative to rationality:

> we need to find some ways of helping individuals and organisations to experiment with doing things for which they have no good reason, to be playful with their conception of

> themselves . . . For most purposes, good memories make good choices. But the ability to forget, or overlook, is also useful.

In other words, the main threat to creativity comes from an excessive desire to be consistent. Consistency refers here to the requirement for action to owe its purpose to some visible form of goal maximization.

Jacobs and Statler (2004) adapt March's proposition about play to the use of decision-making scenarios. They cite Hodgkinson and Wright's (2002, 950) work and the need for "requisite variety in mental models necessary in order to anticipate the future and develop a strategically responsive organization" (Jacobs and Statler, 2004, p. 78). Effective scenario planning exercises encourage the generation of new insights, critical reflections and surprises (Jacobs and Statler, 2004, pp. 78–9). The notion of 'serious play' is used to denote forms of open-ended interaction, expression and speculation that attempt to extend the conceptual basis of scenario planning with methods "that involve more creativity and intuition" (Jacobs and Statler, 2004, p. 77).

In the psychological account, playing acts as a kind of adaptation mechanism to privilege variability, differentiation and the testing of experience in a way that is culturally legitimate. Through play, the psychologist posits the possibility of improved adaptability and an increased capacity to take imagined states and to test them in provisional action as a kind of prototype or experimental iteration of "anything that is humanly imaginable" (Sutton-Smith, 2001, p. 226). Longitudinal research shows that "the more interesting and fulfilling lives are those in which playfulness was kept at the centre of things" (Erikson, 1977, cited in Bruner, Jolly, and Sylva, 1976, p. 17). "Play is . . . the vehicle of improvisation . . . the first carrier of rules systems" (Bruner, Jolly, and Sylva, 1976, p. 20).[2]

Sachs (1995) argues that the brain is naturally engaged in ceaseless inner activity that is much like fantasy and that playful states therefore have a place of their own. The frontal lobes of the brain are associated with restraint and "the weight of duty, obligation, responsibility . . . We long for a holiday from our frontal lobes, a Dionysian fiesta of sense and impulse" (Sachs, 1995, p. 60). Thus, says Sutton-Smith (2001, p. 73), paraphrasing Sachs, "the brain is at play as a neural fabulator."

However, the many treatments of play in the literature of philosophy and anthropology portray a more conflicted outlook. Much is said about the rational and hierarchical nature of play and about its symbolism as a vehicle for competition, ego achievement and the teaching of dominant values. Geertz (1973), for example, views social play as a text to be used in interpreting the major relationship dynamics of a culture. There are many studies of the role of festivals, tournaments, enactments and ritual contests that speak to the power of this form of play to determine and express social hierarchy.

From a decision-making perspective, the idea of playfulness is linked to the proposition that rationality is not on its own a sufficient explanation of how the most expert decision-makers think and act and that want of rationality is not an adequate explanation for why actors allow other thought processes and reference points to guide their behavior. Erikson (1963, p. 213) takes the view that for "the working adult, play is re-creation. It permits a periodical stepping out from those forms of defined limitation which are his social reality." This breaking of bonds includes both a real and metaphorical willingness to ignore the rules and to imitate flight.

From our perspective, there is also an important insight in the way such forms of play often involve a repetition or iteration dynamic. For the Freudians, this is necessarily linked to the notion of the repetition compulsion in which painful experiences are replayed or simulated in new experiences as part of a need to come to terms with an original trauma. In our terms, this anchoring event creates a continuing bias that tilts an actor's judgment toward making the same

mistake over and over again. But it is also interesting to think about the role of iteration in both game playing and decision-making and to wonder if the one is not linked to the other. Multiple iterations might provide the first clue to the way in which the mind rehearses and thus anchors certain important routines of thought, while also creating, through imagination, a fabulous series of hidden alternatives and latent strategies.

In this light, an interesting bridge between the highly idealized theories of play and our very grounded accounts of decision-making come to us from evolutionary theory and from notions of requisite variety, or the need that systems have to match their internal worlds to some sense of the proportion and complexity of their environment. This is well expressed in Ashby's (1960) *Design for a Brain*, as the law of requisite variety. One might put this as the problem of establishing a capacity to deal with issues that are yet to emerge but once emergent will be too complex to allow a long lead time for decision-making. Stephen Jay Gould (1996) makes the same case for variability and redundancy as a way to ensure a residual capacity to adapt. What looks like rank inefficiency turns out to be improved capability.

> Precise adaptation, with each part finely honed to perform a definite function in an optimal way, can only lead to blind alleys, dead ends, and extinction. In our world of radically and unpredictably changing environments, an evolutionary potential for creative responses requires that organisms possess an opposite set of characteristics usually devalued in our culture: sloppiness, broad potential, quirkiness, unpredictability, and, above all, massive redundancy. The key is flexibility, not admirable precision.
>
> *(Stephen Jay Gould, 1996, p. 44)*

In his work on the nature of play, Sutton-Smith (2001) draws a direct line from this notion of variability as adaption to the role of play. The enormous duplication and extension of experience through play is viewed as a way to produce structures "that may have no immediate function and can be exploited for different evolutionary purposes" (p. 222).

Linking Creative Design and Policymaking

To summarize the argument to this point, we can consider design as the promise of some forms of creativity within the policymaking process and on the part of policy experts as the actors likely to be able to think creatively while also being knowledgeable enough to negotiate the practical environments of policymaking. Experts are defined by deep knowledge and experience of a kind that enables high-level pattern recognition and an ability to anticipate or search forward. To model the way such experts might need to think about the world, we have considered the probability that some characteristic cognitive skills would be required and that these would involve both openness and playfulness in relation to decision scenarios and alternatives. It also seems highly likely that this set of capacities would include a characteristic emotional setting in which responsiveness is matched by resilience and an ability to resist path dependence or group-think.

With this in mind, we may now explore the ways in which an account of design might better inform our conceptualization of policymaking. There appear to be two different pathways for doing this. The first concentrates upon the *search* stage in rational deliberation and shows how a design process with various techniques for countering group-think might complement the classic model. The second views design as fundamentally different to rational deliberation and calls for a new conceptualization of this kind of cognition.

In the first, we see policy design as a better search process. Alexander (1982, p. 282) questions the extent to which design is merely a different way to think about the search stage in any rational

decision-making process. In other words, we might just fold the creative elements into a theory of how best to search for alternatives and to discover a range of options for solving a problem. So design becomes the opening-up stage and is explicitly mandated to challenge conservative thinking and to honor what Goodin (1996) calls the requirement of reviseability in institutional design. Typically, when decision-makers share a common set of values, there is a tendency for alternatives to be 'few and similar' as they informally filter out the more adventurous or courageous options. Therefore, for design to become a useful part of the process, we can assume that there is some suspension of the demands for consistency with past practice and some wider proffering of alternatives at the brainstorming and even at the prototyping stage. The idea driving this understanding of design is that it is another way to imagine decision-makers transforming information on the way to making assessments of best fit.

In the second approach, we find design defined as a branching point or deliberate break from the past. For Hausman (1975, p. 53) the very essence of creativity is a "controlled yet discontinuous" process that challenges the "regularity and orderliness expected of an intelligible world." Perhaps the best of the research in this area is based on attempts to correlate successful creativity with certain environmental or organizational variables in the hope that one might beget the other. As Alexander (1982, p. 289) puts it, there is broad consensus on the kind of environment "which will stimulate creativity and innovation," and he lists such things as decentralized authority, high levels of discretion, incentives for risk taking, adequate 'slack' to absorb mistakes, openness and multilevel access to the environment. But he concludes (p. 289) with the pessimistic observation that there may still be an "irreducible element of irrational creativity" that admits no "systematic resolution." A solution to this problem could be to 'backward map' the forms of creativity that experienced policymakers bring to bear on problem solving. If we are right in thinking that such experts have certain heuristics to help organize their thinking and that these forms of mapping enable a sophisticated form of pattern recognition and anticipation, then there ought to be something qualitatively different about high-level experts and those just starting out. But does that indicate a creative capacity or just a better way to do what is expected?

In order to bring such processes to light, there is obviously a need to conceptualize more clearly the cognitive style of experts and to model their creative responses to problems. The empirical study of expertise from this perspective starts with the pioneering work on chunking theory (Chase and Simon, 1973), template theory (Gobet and Simon, 1996) and abstract role theory (Linhares, 2005; Linhares and Brum, 2007). In the first two accounts, the chunks or templates provide an explanation of the way pattern recognition drives higher level performance. These mental maps are formed through long experience and practice during which the expert groups various similar episodes and the successful strategies for dealing with them in long-term memory, but coded under easy to retrieve categories that respond quickly to cues or clues in the present. Various studies of chess players and other high-skill games point to the influence of pattern recognition in accounting for differences in the performance of ordinary experts and super experts (Charness, 1989; Gobet, 1998). It is generally the case that these explanations favor pattern recognition over analytical processing as the explanation of superior performance. Pattern recognition, in addition, encompasses certain of the heuristics identified in cognitive science and discussed already.

In other words, the high-level expert involved in policymaking will probably not search more widely, evaluate more alternatives or conjure more strategic options. It is likely to be the weaker, less experienced players who rely more upon this kind of analytical processing. It is also argued (De Groot, 1965; see also Bilalić, McLeod, and Gobet, 2008) that memory can be less important to the best players than the ability to perform an evaluation of forward search options. The best players can evaluate the different paths that lay ahead in a superior fashion. Certainly, there are

"doubts about the necessity of a tight connection between expert performance and experts' superior memory" (Ericsson and Kintsch, 2000, p. 578).

What these theories and their various studies establish is that performance is first of all a measured capacity to optimize under pressure using some mix of memory, memory triggers, search and the projection of current conditions into future states.

Conclusion and Propositions

What we can conclude from the research is that conventional models of deliberative choice do not satisfy all the demands we might want to make of creative experts in the policymaking process. However, while attractive, design theory to date has lacked clear propositions concerning this creative process, in part because it has not considered the research into other forms of expertise and used this to formulate propositions for testing in the design field. In accounts of the role of policy games and scenarios and in the possible impact of serious play in the creative process, we have identified the terrain of creative practice and some of its likely features, but we do not yet have agreement on a decision-making model that might prove testable. As a step to building such a model, we can therefore identify in proposition form the conditions and characteristic elements likely to distinguish a creative design expertise from other decision-making attributes.

Proposition 1: goal emergence. Design theory expects goals to emerge in the process of decision-making, including toward its conclusion, and this is thought to release some of the strictures known to promote conservatism.

Proposition 2: pattern recognition. Designers will be defined as experts with a high capacity to recognize patterns in data and thus to read the environment using a number of complex heuristics.

Proposition 3: anticipation. Designers search forward using skills of anticipation that draw upon memorized experiences and strategies. Being creative thus suggests a capacity to visualize unexpected future states.

Proposition 4: disruption. Design theory promotes the idea that a creative outcome will require some break or disruption from accepted practice in regard to prototypes and in some actual outcomes.

Proposition 5: emotional engagement. Design thinking will address emotional responses by designers and stakeholders and make these biographical capacities a driver for developing solutions.

Proposition 6: fabulation. Design theory is comfortable with the costs of developing playful scenarios and prototypes, including some that will be considered highly impractical but that will promote openness and surprises.

Proposition 7: nonconsistency. The design process will explicitly promote a degree of playfulness and a loosening of the requirement to behave consistently, generating increased variety in the stock of embedded alternatives available.

Proposition 8: risk protection. The decision-making environment for designers needed to promote creativity by experts will involve techniques and processes to foster open-ended thinking, shield designers from foreclosure and limit the impact of positivity bias and other heuristic traps.

It seems unlikely that an account of policy expertise employing such propositions will contradict the existing 'policy process' models, for as we saw at the start of this discussion, they concern

themselves with constraints and structural imperatives, not with the capacities of individual actors such as policy experts. Some of these propositions, as noted above, may be incorporated into revisions of these other models, for example in helping deepen our understanding of the way certain forms of thinking come to be successfully challenged. But what is most interesting about the application of more detailed models of cognition is its potential to help explain how practice and training and different levels of experience might equip policymakers to perform better, or at least differently in those situations where potential for change is permitted by prevailing structural conditions.

Notes

1. Creativity, of course, is widely regarded as a positive influence on both individual and collective opportunities. The United Nations Development Programme's first Human Development Report (1990, p. 9) makes the case that "the basic objective of development is to create an enabling environment for people to enjoy long, healthy and creative lives."
2. Gambling is an obvious case of adult play where fantasy, fate and chance replace reason, but not always in a positive way. Or as Caillois (1961, p. 17) puts it, chance "signifies and reveals the favor of destiny. . . . It seems an insolent and sovereign insult to merit." But somewhat more optimistically, Sutton-Smith (2001, 72) offers the insight that while gambling is "not in itself typically a form of success, it is nevertheless a model of the belief that life should involve risk taking."

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11

PERSPECTIVES ON POLICY ANALYSIS

A Framework for Understanding and Design[1]

Igor S. Mayer, C. E. van Daalen and Pieter W. G. Bots

Introduction

Policy analysis is a multifaceted field in which a variety of different activities and ambitions have found a place. Some policy analysts conduct quantitative or qualitative research, while others reconstruct and analyze political discourse or set up citizen fora. Some policy analysts are independent researchers, some are process facilitators, while others act as political advisers (Dror 1967; Jenkins-Smith 1982; Durning and Osuna 1994). The debate on the discipline—for example on its foundations, underlying values and methods—is conducted in a fragmented way (Dunn 1994; Brewer and DeLeon 1983; Hogwood and Gunn 1984; Bobrow and Dryzek 1987; Wildavsky 1987; DeLeon 1988; MacRae and Whittington 1997; Hawkesworth 1988; House and Shull 1991; Weimer and Vining 1992; Fischer and Forester 1993; White 1994; Radin 1997; Mayer 1997; Hoppe 1998; Shulock 1999; Lynn 1999).

The variety and multifaceted nature of policy analysis makes it clear that there is no single, let alone 'best,' way of conducting policy analyses. The discipline consists of many different schools, approaches, roles and methods. The observed diversity of policy analysis gives rise to numerous questions. If we are unable to construct cohesion and unity behind this great diversity, we cannot speak of a discipline.

In this chapter, we will reason from the inside out: from policy analysis activities and styles, to their implications for policymaking. What relationship exists between the different schools and activities in policy analysis? Do they exclude each other or are there—in practice—numerous hybrids and combinations? What conceptual framework do we have at our disposal if we need to demarcate the discipline, design new methods and approaches or evaluate projects? Can we enrich the methodological toolbox by adding new methods? What is the relationship between policy analysis methods and insights from the policy sciences, such as interactive policy development and process management (Edelenbos 1999; de Bruijn et al. 2002)? These are important questions that we obviously cannot answer in full and all at once, but for which we hope to provide a framework.

The great diversity of views, schools and methods easily causes confusion and gives rise to the need for insight into the discipline for insiders and outsiders alike (Radin 1997; Lynn 1999). Various attempts have been made to untangle and explain policy analysis as a methodical discipline. Some well-known examples of models in which activities and methods are systematically

related can be found in Dunn (1994), Brewer and DeLeon (1983), Hogwood and Gunn (1984), Bobrow and Dryzek (1987), Miser and Quade (1985), Patton and Sawicki (1986), Weimer and Vining (1992) and Mayer (1997).

It is precisely because of the varied developments in policy analysis and the diffuse image that they create of the field that this chapter seeks to make the field transparent and to structure it with the help of a framework or conceptual model. Structuring will not take place by choosing a specific author, perspective or school, but rather by displaying the variety of views of policy analysis. It is not our intention to adopt a normative standpoint on what the most preferable form or style of policy analysis should be. This chapter provides a framework for positioning the different perspectives and for highlighting the implications of choosing a perspective when designing or evaluating a policy analysis project. A somewhat broader view of policy analysis will be taken in this chapter. All activities related to policy research and advice are taken into account, in order for the conceptual model to cover everything that may be considered as part of policy analysis in the literature.

The conceptual model presented here has three functions. First, structuring the field into activities and styles provides a greater insight into and overview of the diversity of policy analysis. The model is a means to demarcate and understand the field as a whole. Second, when designing a particular policy analysis project, the analysts will select methods and tools they consider to be appropriate. The model can support choosing existing methods and designing new methods. Third, we believe that the quality of a policy analysis project can be judged from different perspectives. The model helps to formulate the values pertaining to a perspective, values from which criteria for the evaluation of a policy analysis project can be derived. In the following sections, we will develop the conceptual model step by step. The activities and styles are portrayed in an archetypical way, i.e., the way they are presented in the literature by proponents of the style.

Policy Analysis Activities

Our strategy in developing the conceptual model has been to first address the question: "What general activities do policy analysts perform when it comes to supporting policy and policy processes?" We distinguish a number of major clusters of activities. These clusters of activities have been identified using both authoritative literature on policy analysis as well as by studying exemplary and contrasting cases of actual policy analyses in the fields of water management, transport, environment, genetic and medical technology, science and technology policy and spatial planning and construction (Mayer et al. 2004). The six major clusters of activities are:

1. Research and analyze
2. Design and recommend
3. Clarify values and arguments
4. Advise strategically
5. Democratize
6. Mediate

In real-life cases and projects, a policy analyst will combine one or more of the six activities, albeit not all at the same time. As more activities are combined, a policy analysis project will become richer and more comprehensive, but also more complex.

The hexagon in Figure 11.1 is a diagrammatic representation of these six activities. The theoretical foundation will be discussed later in this chapter, when we show the policy analysis styles and criteria on which the clustering of activities has been based. In this section, we focus on the six activities. At the end of this section, we look at the relations among the various activities in more detail.

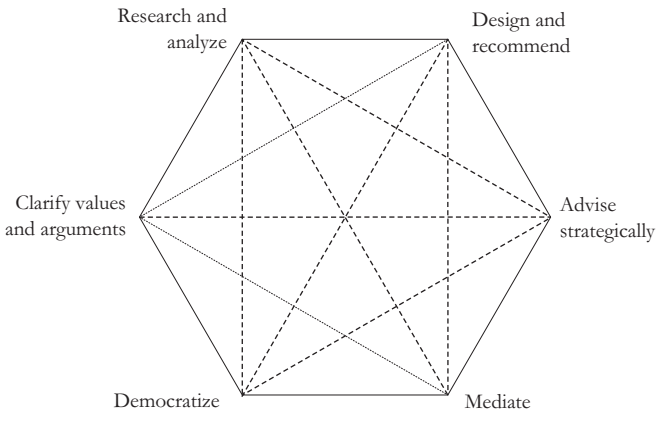

Figure 11.1 Diagrammatic Representation of Policy Analysis Activities

Research and Analyze

Has the number of cases of driving under the influence of alcohol increased compared to previous years? Has privatization of public utilities and services led to lower prices for consumers? How is climate change likely to affect coastal regions?

Questions like these, which are highly relevant to policy, are about facts, causes and effects and therefore call for scientific research. In some respects and manifestations, policy analysis is indeed a form of applied research (cf. Dunn 1994) that uses research methods and techniques that are scientific or derived from science, such as surveys, interviews and statistical analysis, but also simulation and extrapolation. This cluster of activities matches with a perspective on policy analysis as knowledge generation. Knowledge institutions, such as statistical agencies, semi-scientific research institutions and research agencies, gather and analyze, on request and at their own initiative, knowledge and information for policy purposes. It is possible that the political agenda influences their research priorities, but the results of their autonomous research activities may also influence the political agenda. Translation of the results of their research into a policy design or recommendation is not a primary part of their task or mission. It is up to the political system to identify consequences and draw conclusions from the best available knowledge.

Design and Recommend

What can government do to improve the accessibility of large cities? What measures can municipalities take to improve local safety? How can the container storage capacity in harbor areas best be increased—by improving utilization of existing capacity or by creating more capacity?

These policy questions are mainly design- and solution-oriented. When sufficient data and information have been gathered in earlier research, a policy analysis will focus on translating the available knowledge into new policy, either by making recommendations or by making a complete policy design. Recommendations will typically be the result of comparing the effects of different policy alternatives and weighing the options based on various criteria. Policy analysts in this way are supportive to the policy process by translating available knowledge into new policy by either advising or making (partial) policy designs in terms of 'actions-means-ends.' A complete policy design typically involves generating and comparing the estimated outcomes of a set

of alternative strategies, each of which may consist of several policy options aimed at achieving particular objectives or sub-goals (Walker 1988; Walker 2000).

Clarify Values and Arguments

Why, or more accurately about what, is there a clash of opinions between supporters and opponents of river dike enforcement or the expansion of a national airport? What values and arguments come to the fore as regards approving or rejecting developments in the field of modern genetic technology, as in the case of prenatal diagnosis and cloning?

There will always be implicit normative and ethical questions and opinions behind public policy. Prolonged conflicts and social issues that turn into stalemates often come about through fundamental normative and argumentative differences (van Eeten 2001; Fischer and Forester 1993). Abortion, euthanasia and drilling for natural gas in protected areas are examples of such issues. Policy analysis may not only make instrumental recommendations for policymaking; it may also analyze the values and argumentation systems that underpin the social and political debate. Moreover, policy analysis seeks to improve the quality of the debate by identifying the one-sided or limited nature of arguments or showing where blind spots exist in the debate (Fischer and Forester 1993; Hoppe 1998).

Advise Strategically

What should a government minister do to bring about acceptance of road pricing plans? What strategy can a government minister adopt to close coal-fired power plants?

These questions illustrate that policy analysis will often be a strategic, client-oriented activity. The substantive or procedural advice will be made dependent on the analysis of the field of forces that exist, i.e., the environment in which the client and his problem are located. The policy analyst will advise the client on the most effective strategy for achieving certain goals given a certain political constellation, i.e., the nature of the environment in which the client operates, the likely countersteps of opponents and so on.

Democratize

How can citizens receive more and better information about how to have their say in decisions regarding important social issues like genetic technology or a new metro line? How can citizens make an informed choice when it comes to a tricky and difficult question like the reconstruction of a railway station area?

In the 'democratize' cluster of activities, policy analysis does not have a value-free orientation, but a normative and ethical objective: it should further equal access to, and influence on, the policy process for all stakeholders (DeLeon 1994, 1988; Lerner and Lasswell 1951). In many policymaking situations, experts and elites are more likely to be involved and carry greater weight than ordinary citizens and laymen (Fischer 1990). Policy analysis can try to correct this inequality by calling attention to views and opinions typically overlooked in policymaking and decision-making (Fischer 2000).

Mediate

How can industry and government agree on the moderation of their dispute about the possible harm caused by zinc emissions to the environment and health? How can they deal with conflicting findings of scientific research on this matter? What is a good process for exploring the future of a municipality with all stakeholders, such as citizens, businesses, etc.?

These questions show that resolving policy issues may require mediation. Policy analysts can play a role in enhancing the knowledge actors have about their own position, about the actors' room for maneuvering and in looking for possible compromises and win-win options. In addition, they can be involved in designing the rules and procedures for negotiating in a policymaking or decision-making process, and in managing the interaction and progress of that process.

The mediation cluster comprises different types of activities, with a focus on analyzing contextual factors (e.g., dependency analysis, transaction analysis), and designing, and possibly also facilitating, meetings in which different stakeholders and decision-makers consult and negotiate.

Relationships Among the Activity Clusters

Depending on the specific policy analysis design, one or more of the activity clusters may become dominant, while other activities may play a subordinate role in certain (phases of) projects or be irrelevant. In Figure 11.1, we have arranged them in such a way that activities we consider to be most akin are shown alongside each other. For example, 'design and recommend' activities are a logical extension of 'research and analyze' activities, and 'clarify values and arguments' activities can feed into 'democratization' and 'mediation' activities.

The further away activities are from each other, the greater the field of tension for uniting the activities will be. A scientific research activity can easily conflict with the pragmatic and involving nature of mediation among actors. But if we identify opposing activities as fields of tension, we certainly do not mean that these activities are incompatible. The tension will have to be resolved in the specific policy analysis design. It will be necessary to make an 'arrangement' whereby—for example—the analysis of arguments and underlying values can support the mediation and dialog among conflicting standpoints; or whereby the design of the analyst is produced through open and equal dialog with citizens, laymen and stakeholders. It is precisely the bridging of these tensions that generates innovation in projects and methods.

Combinations of two adjacent clusters of activities can be traced to specific styles of policy analysis. We will look at this matter of styles of policy analysis in the next section.

Policy Analysis Styles

It is the objective of the hexagon model to clarify and understand the discipline of policy analysis. Numerous schools of thought, paradigms and models can be found in the policy analysis literature (Bobrow and Dryzek 1987; DeLeon 1988; Hawkesworth 1988; House and Shull 1991; Mayer 1997). In this section, we will refer to styles of policy analysis rather than to a paradigm, model or school.

Six Styles of Policy Analysis

Based on the schools discussed in the literature and on the conceptual framework in Figure 11.1, we have identified six policy analysis styles. Each style is associated with the side of the hexagon linking two adjacent vertices. The styles are:

1. Rational style
2. Argumentative style
3. Client advice style
4. Participatory style
5. Process style
6. Interactive style

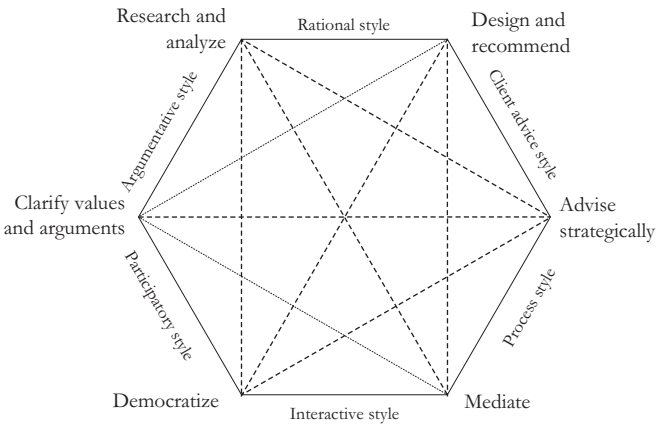

Figure 11.2 Policy Analysis Styles Placed in an 'Archetypal' Way in Between the Different Activities

Figure 11.2 shows how these six styles relate to the six activities shown in Figure 11.1. In what follows, we briefly discuss the styles in an archetypical manner, presenting the arguments that are used by proponents of each of the styles.

1. Rational Style

The rational style of policy analysis is shaped to a large degree by assumptions about knowledge and reality, and by a relatively large distance between the object and subject of study. It is assumed that the world is to a large extent empirically knowable and often measurable. Knowledge used for policy must be capable of withstanding scientific scrutiny. The role of knowledge in policy is a positive one, i.e., a greater insight into causes, effects, nature and scale produces better policy (Weiss and Bucuvalas 1980). Policy should come about—preferably—in neat phases, from preparation to execution, with support through research in each phase.

An example of this policy analysis approach is the systems analysis method developed by the RAND Corporation (Quade 1989; Miser and Quade 1985; Walker 2000). The advice on policy regarding the Eastern Scheldt storm surge barrier in the Netherlands was obtained using this method (Goeller et al. 1977). This style is discussed in many general textbooks on methods of policy analysis (Patton and Sawicki 1986; MacRae and Whittington 1997; House and Shull 1991).

2. Argumentative Style

This style assumes that policy is made, defended and criticized through the vehicle of language. The basic assumption of the argumentative style is that, when analyzing policy, it is important to devote attention to aspects related to the language game that takes place around a policy problem or issue. Attention will shift to the debate and the place in the debate of arguments, rhetoric, symbolism and stories (Fischer and Forester 1993; Fischer 1995; van Eeten 2001). Arguments aim to have an effect on the public. Therefore, policy analysis will make policy easier to understand by illustrating the argumentations and the quality thereof schematically and by making a judgment based on criteria such as justification, logic and richness (Dunn 1982, 1994). It is not sufficient to identify values and arguments; the argumentation also has to be valid. The argumentative style

assumes that it can make the structure and progress of the discourse transparent and can also bring about improvements by, for example, identifying caveats in the debate.

3. Client Advice Style

The client advice style is based on the assumption that policymaking occurs in a complex and rather chaotic arena. There are numerous players, each having different interests and strategies (de Bruijn and ten Heuvelhof 2000; de Bruijn et al. 2002). Therefore, it is wise to gain insight into the various objectives, means and interests of the actors involved. For that reason, the analysis of this complex environment is important and can be undertaken analytically and systematically by such means as stakeholder analyses, although intuition and soft information definitely play a role. Besides knowledge and insights gained through research, policy analysis is largely a question of politico-strategic insight and skills, including client-analyst communication. In addition to being a skill—methodical and explicit—policy analysis is also an art, in which tacit knowledge plays an important role (Wildavsky 1987).

4. Participatory Style

Participatory policy analysis is based on the fact that traditionally, for a variety of reasons, some stakeholders are not included in the policymaking process, which can lead to values and arguments being overlooked and difficulties in policy implementation. Researchers, economic elites, institutionalized non-governmental organizations and politicians often dominate policy discussions about major social issues (Jasanoff 1990). Researchers, stakeholders and policymakers may even change roles and positions within one and the same system. Certain subjects, and also certain groups of actors, are often excluded from the social debate. This is referred to as the technocratic criticism of policy analysis (Fischer 1990). Participatory policy analysis assumes that citizens can have a voice and be interested enough to deliberate on substantive and politically difficult questions (Dryzek 1990; Fishkin 1991; Durning 1993; DeLeon 1994; Mayer 1997; Fischer 2000). It assumes that there may be several different sets of values and perspectives on a policy issue, and that the analysis should include these different points of view. The policy analyst can take on a facilitating role in such deliberations by promoting equality and openness in the entire project—giving ordinary citizens and laymen a role alongside others in the policymaking process (Mayer 1997)—and/or by ensuring that all relevant arguments are included in the debate.

5. Process Style

Just as in a game of chess, the parties that participate in a policymaking process will exhibit strategic behavior in the pursuit of their own objectives and achievement of the best possible positions, even if such action runs counter to the public interest formulated in policy (de Bruijn et al. 2002). It is perfectly understandable that, in controversial and complex issues, opponents will underpin their case with conflicting research reports. Impartial experts do not exist, and a solution introduced through a new report or study can actually aggravate the problem. In fact, in this style, knowledge is (not much more than) negotiated knowledge. It is better to negotiate and reach agreements about the use of the results of a study or jointly contract for the research (de Bruijn et al. 2002).

The process style of policy analysis is based on the assumption that substantive aspects of a policy problem are in fact equal, or perhaps even subordinate, to the procedural aspects of the

problem. The analyst or process manager creates a 'loose coupling' of the procedural aspects and substantive aspects of a problem. Procedural aspects are understood to be the organization of decision-making or the way in which parties jointly arrive at solutions to a problem. To that end, agreements can be reached through 'mediation and negotiation.' The analyst will focus on issues related to the process, such as stakeholder objectives, resources, power and strategies, rather than on substantive issues of the situation. If the procedural sides of a policymaking or decision-making process have been thought through properly, it will greatly increase the likelihood of substantive problems being resolved. Substantive problems can be made part of a process design, for example, by placing the different substantive aspects on the agenda.

6. Interactive Style

The interactive style of policy analysis assumes that individuals—experts, analysts, clients and stakeholders, as well as target groups—who are involved in making a decision about a policy problem may have differing views of the 'same' problem. An insight relevant to policy can be obtained by bringing about a confrontation and interaction of different views. The interactive style has a strong socio-constructive foundation. Different views of reality ('perspectives') can be valid simultaneously. Through continuous interaction and interpretation—the 'hermeneutic circle'—it is possible to gain an 'insight' (Guba and Lincoln 1989). In the interactive style of policy analysis, target groups and stakeholders are usually invited to structure problems and devise solutions in structured working meetings at which policy analysis techniques may be used (Mason and Mitroff 1981). Through these multiple interactions, the views and insights of the analyst, the client and the participants are enriched (Edelenbos 1999). The selection of views is obviously crucial. Political considerations (the power to obstruct) and enrichment arguments (what do citizens really think?) may be interwoven. The interaction that is organized among the stakeholders is aimed at an effective exchange of views and is more action oriented (focused on the decision) than in the participatory style. If policy analysis concerns the redevelopment of a city square, for example, stakeholders such as local residents and business people can be consulted by means of workshops about the problems they experience with the present arrangement of the square and their wishes with regard to the new plans. The interactive style assumes that a process like this is informative for decision-makers and planners, is more likely to lead to acceptance and fulfillment of the plans and can bring about all kinds of positive effects among the participants (learning about each other and about policy processes) (Edelenbos 1999).

Community Operational Research (Midgley and Ochoa-Arias 2004) is an example of the interactive style of policy analysis.

Definition of Archetypal Styles

Figure 11.2 shows the policy analysis styles placed in an 'archetypal' way in between the different activities. Every style balances two important activities. The balance does not necessarily need to give equal weight to both activities. Participatory policy analysis balances 'democratization' and 'clarification of values and arguments.' The emphasis may be more on one activity than on the other: citizens can be directly involved in discussions about genetic technology, or the analyst may be mainly interested in the value systems, arguments and opinions of citizens about the technology and may want to systematize them for the purpose of policy advice.

The argumentative style balances 'research and analyze' and 'clarification of values and arguments.' Some argumentative policy analysts attempt to improve the quality of policy by

testing the policy design as thoroughly as possible, or by building on the consistency, validity, etc., of the underlying arguments (Dunn 1994). This is based on the principle that 'claims must be backed up by facts' ('backings'). The 'formal logic' is dominant in this setting. Others reconstruct arguments, not in relation to scientific quality, but according to their variety and richness. This allows greater scope for normative systems, religion and intuitive arguments (Fischer 1995).

In a similar way, the rational style balances 'research and analyze' and 'design and recommend'; the interactive style balances 'democratize' and 'mediate'; the client advice style balances 'design and recommend' and 'advise strategically'; and the process style balances 'advise strategically' and 'mediate.'

The styles of policy analysis may thus have different manifestations and emphases. A focus on a certain activity may result in a style leaning more toward one activity than another.

Relating the Styles to Policymaking Models

As implied above, policy analysis styles are influenced and co-defined along multiple dimensions, such as assumptions about science (epistemology), democracy, learning and change, which are subject to continual change. The policy analysis styles can be mapped to related frames or models of policymaking (Enserink et al. 2013), as shown in Figure 11.3. The mapping is meant to be indicative, rather than a precise one-to-one mapping.

1a. The rational style of policy analysis can be related to the rational view of policymaking, in which policymaking is regarded as an intellectual activity in which policies are chosen in a rational way using objective knowledge.

1b. Classical amendments to the rational model move away from a purely rational view of decision-making, for example by considering satisficing rather than optimizing and by taking a more pragmatic view that leans more toward the 'design and recommend' type of activity in both the rational and client advice styles.

2. If policymaking is regarded as a political game in which policies are based on political preferences, policy analysis can be related to the strategic end of the client advice style in which knowledge obtained through research is combined with politico-strategic insight and bureaucratic politics.

3. In the garbage can model, policymaking is seen as erratic and volatile. As both substantive and procedural aspects are considered to be relevant, this view of policymaking can be related to the process style of policy analysis. Because problems, solutions, participants and political events have to be coupled in this view of policymaking, it is more oriented toward interactions among stakeholders than is the case in the client advice style.

4. In the (neo-)institutional view of policymaking, institutions stabilize the interactions among actors into patterns that make it easier for them to deal with new policy problems. This requires shared institutional arrangements and institutional settings in which all relevant stakeholders and interests are included. The interactive style of policy analysis can support this view of policymaking, because it emphasizes the confrontation and interaction of disparate views.

5. The discourse model of policymaking focuses on the (quality of) arguments that stakeholders use in a policy debate. This view can relate to both the argumentative style of policy analysis and the participatory style of policy analysis. These policy analysis styles differ with respect to the balance of scientific rigor and representation in the debate, but the point of departure for both is the view on policymaking as a discourse.

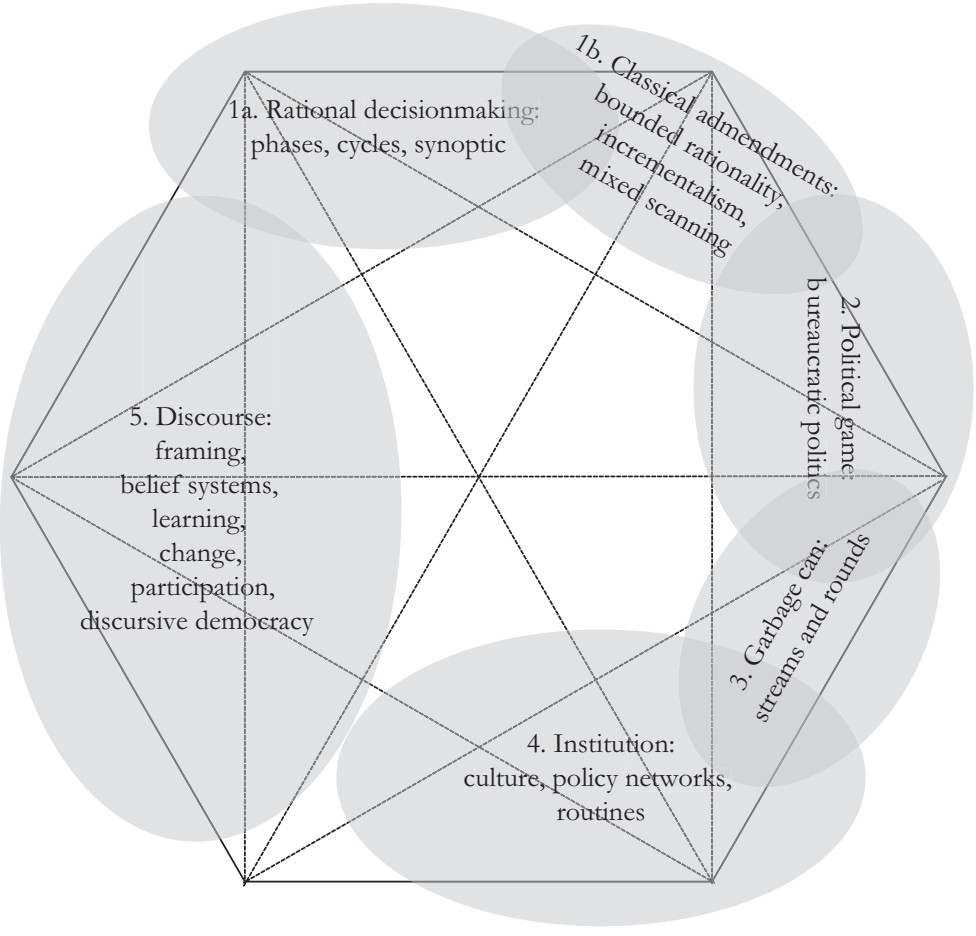

Figure 11.3 Policy Analysis Styles Can Be Mapped to Related Frames or Models of Policymaking

Other Ways of Combining Activities

In the previous section, we differentiated among the policy analysis styles by arguing that each one balances two adjacent activities. It is also possible to combine activities that are not adjacent to one another. In other words, a policy analytic arrangement can be made whereby two or more activities that are opposite, rather than adjacent, to each other in the hexagon of Figure 11.1 are combined. This kind of combination or arrangement, symbolized by the dashed diagonals in the hexagon, is achievable in two ways: the activities can be carried out sequentially or separately, either in various parts of one policy analysis project or in different complementary or competing projects (i.e., a form of methodological triangulation of activities). As part of a policy analysis project focusing on climate change, for example, research can be conducted first by experts using climate models (activity: 'research and analyze') and subsequently the perceptions and arguments of ordinary citizens and laymen regarding climate change can be mapped out (activity: 'clarify arguments').

The various activities can be integrated into a single project. As part of a project focusing on climate change, for example, climate models can be used to get various groups of stakeholders, experts, politicians and so on to jointly generate and test policy proposals, while obtaining feedback from representative citizen panels. Such a project design would integrate several policy analysis activities—in particular, research, design, democratize and mediate.

Policy Analysis Evaluation Criteria and Policy Analyst Roles

Criteria for Evaluating Policy Analysis Activities

In addition to demarcating and understanding the field of policy analysis and designing a policy analysis project, the hexagon model has a third function: evaluation of policy analysis projects and methods (Twaalfhoven 1999; Thissen and Twaalfhoven 2001). The various activities are based on underlying values and orientations. The values determine the way a policy analyst or others will view the quality of the policy analysis study, and hence they determine the criteria that will be applied to examine the study. The criteria can be made explicit by addressing the following questions for the styles and then translating these to the related activities:

1. Rational style: what is good knowledge?
2. Argumentative style: what is good for the debate?
3. Client advice style: what is good for the client/problem owner?
4. Participatory style: what is good for society?
5. Process style: what is good for the process?
6. Interactive style: what is good for mutual understanding?

Depending on the activities that are carried out, the criteria related to answering these questions will be different. For example, with regard to 'mutual understanding,' more emphasis will be placed on transparency in a 'democratize' activity, whereas, in a 'mediate' activity, commitment will be more important.

Figure 11.4 shows that the activities in the top half of the hexagon are primarily object-oriented activities: a system, a policy design, an argumentative analysis. The activities at the bottom are subject-oriented activities. They focus primarily on the interactions among citizens, stakeholders, the analyst and the client. Whereas the top half activities are usually captured in a product—e.g., a report, a design, a computer model—the effects of the bottom half activities are usually captured in the quality of the process itself: increased support base, sharing of perspectives, citizenship, learning. The distinction 'object-subject' translates into the types of evaluation criteria to be applied. Object-oriented policy analysts will judge the quality of a policy analysis by its scientific rigor or the substantive insights it has yielded. Subject-oriented policy analysts will base their judgment on the contribution of the orchestrated interaction among the participants to the decision-making process. The pivot point between object and subject oriented activities lies with 'clarify values and arguments' and 'advise strategically.' These can be object- oriented, subject-oriented or both.

Figure 11.4 also shows that the activities on the left-hand side are judged by generic scientific and socially desirable criteria, such as validity, reliability, consistency, fairness, equality and openness. The activities on the right-hand side of the hexagon are judged by more pragmatic criteria, such as workability, usability, opportunity, feasibility and acceptability.

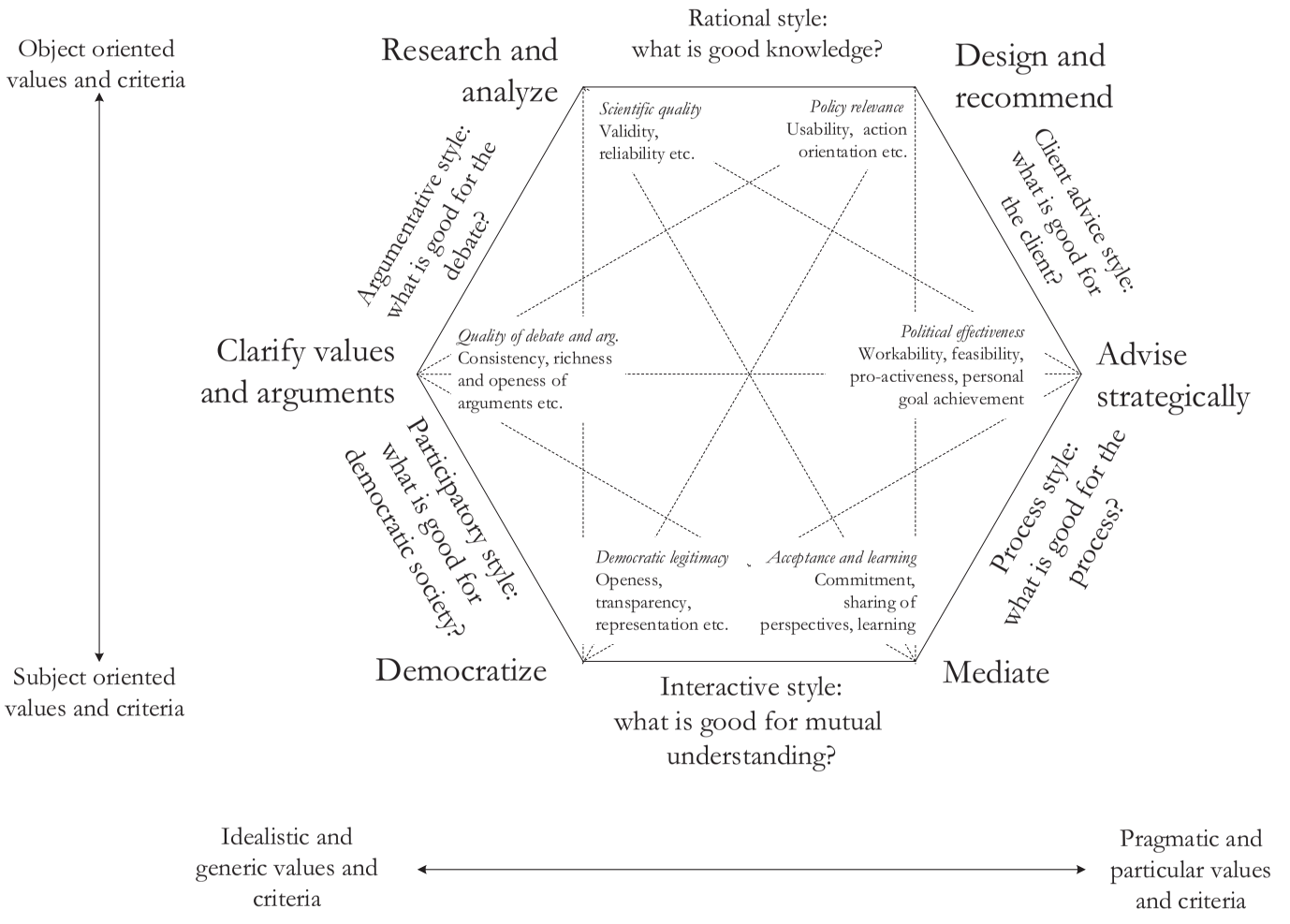

Figure 11.4 Criteria for Evaluating the Quality of a Policy Analysis Project

These criteria for evaluating the quality of a policy analysis project or method are summarized in Box 11.1 and appear in the corners of the hexagon in Figure 11.4. Note that these are illustrations of possible criteria. They are not meant to be a definitive, comprehensive list.

Box 11.1 Quality Criteria for the Activities

Research and Analyze

The policy analysis will be judged by substantive (scientific) quality criteria, such as validity and reliability, the use and integration of state-of-the-art knowledge, the quality of data gathering and the formal argumentation and validation of conclusions.

Design and Recommend

The policy analysis will be judged by instrumental criteria of policy relevance, such as usability and accessibility for policymakers, action orientation and utilization, presentation and communication of advice, weighing up of alternatives, clear choices, etc.

Clarify Values and Arguments

The policy analysis will be judged by the quality of the argumentation and the debate. Some argumentation criteria are formal logic (consistency) and informal logic (rhetoric and sophism). Some quality of debate criteria are richness, layering and openness of arguments.

Advise Strategically

The policy analysis will be judged by pragmatic and political effectiveness criteria, such as the 'implementability' of the advice, political cleverness and proactive thinking, insight (for the client) into the complex environments (political and strategic dynamics, forces and powers) and the targeting and achievement of goals.

Democratize

The policy analysis will be judged by democratic legitimacy criteria, such as the openness and transparency of the policymaking process, representation and equality of participants and interests, absence of manipulation, etc.

Mediate

The policy analysis will be judged by external acceptance and learning criteria, such as the agreement that mutually independent actors reach on the process and/or content, support for and commitment to the negotiating process and the resulting solutions and the amount of learning about other problem perceptions and solutions.

The Role of the Policy Analyst

While the hexagon model is based on activities, styles and quality criteria, it can also be used to generate and organize positive and negative images, and even descriptive metaphors for the policy analyst (Dror 1967; Jenkins-Smith 1982; Durning and Osuna 1994). Some policy analysts allow themselves to be guided mainly by their wish to conduct objective scientific research; these are the objective technicians. In contrast, others are mainly focused on their interactions with the client; these are the client advisers or counselors. Some advocate a clear standpoint, such as a more stringent environmental policy; these are the issue activists. How the role of a policy analyst is perceived depends on one's own values and position in a policy process. A skillful strategic advisor, for example, may be highly appreciated by her client, but portrayed as a hired gun by her client's opponents. In Table 11.1, positive and negative images of the role of the policy analyst are depicted for each activity.

Table 11.1 Positive and Negative Images of the Role of the Policy Analyst Are Depicted for Each Activity

Activity	*Positive Role Image*	*Negative Role Image*
Research and Analyze	Independent scientist; objective researcher.	Amoral researcher; technocrat.
Design and Recommend	Independent expert; impartial adviser.	Desk expert; 'back seat driver.'
Clarify Values and Arguments	Logician or ethicist; narrator.	Linguistic purist; 'journalist.'
Advise Strategically	Involved client adviser; client counselor; policy entrepreneur.	'Hired gun.'
Democratize	Democratic (issue) advocate.	Missionary; utopian.
Mediate	Facilitator; mediator; process manager.	Manipulator; 'relativist.'

Perspectives on the Field of Policy Analysis

Figure 11.5 presents the complete conceptual model, in which policy analysis activities are related to the underlying styles, the quality criteria and the policy analyst's roles. The figure enables us to demarcate all manifestations and varieties of policy analysis, and also to develop new approaches and methods. Methods developed mainly within one style of policy analysis can be combined with insights from another style and adapted to new activities. Below, we briefly recapitulate the three functions of the conceptual model—demarcate, design and evaluate.

Demarcation of Policy Analysis

Policy analysis is characterized by both ambitions and ambivalences. Some approaches complement each other, while others are somewhat in conflict, so it is very difficult to define and describe what policy analysis is. The added value of the hexagon model is that it makes it clear why policy analysis is ambivalent and elusive—because the proponents and opponents reason from different points of departure about what they are doing, and why they are doing it, and because of the

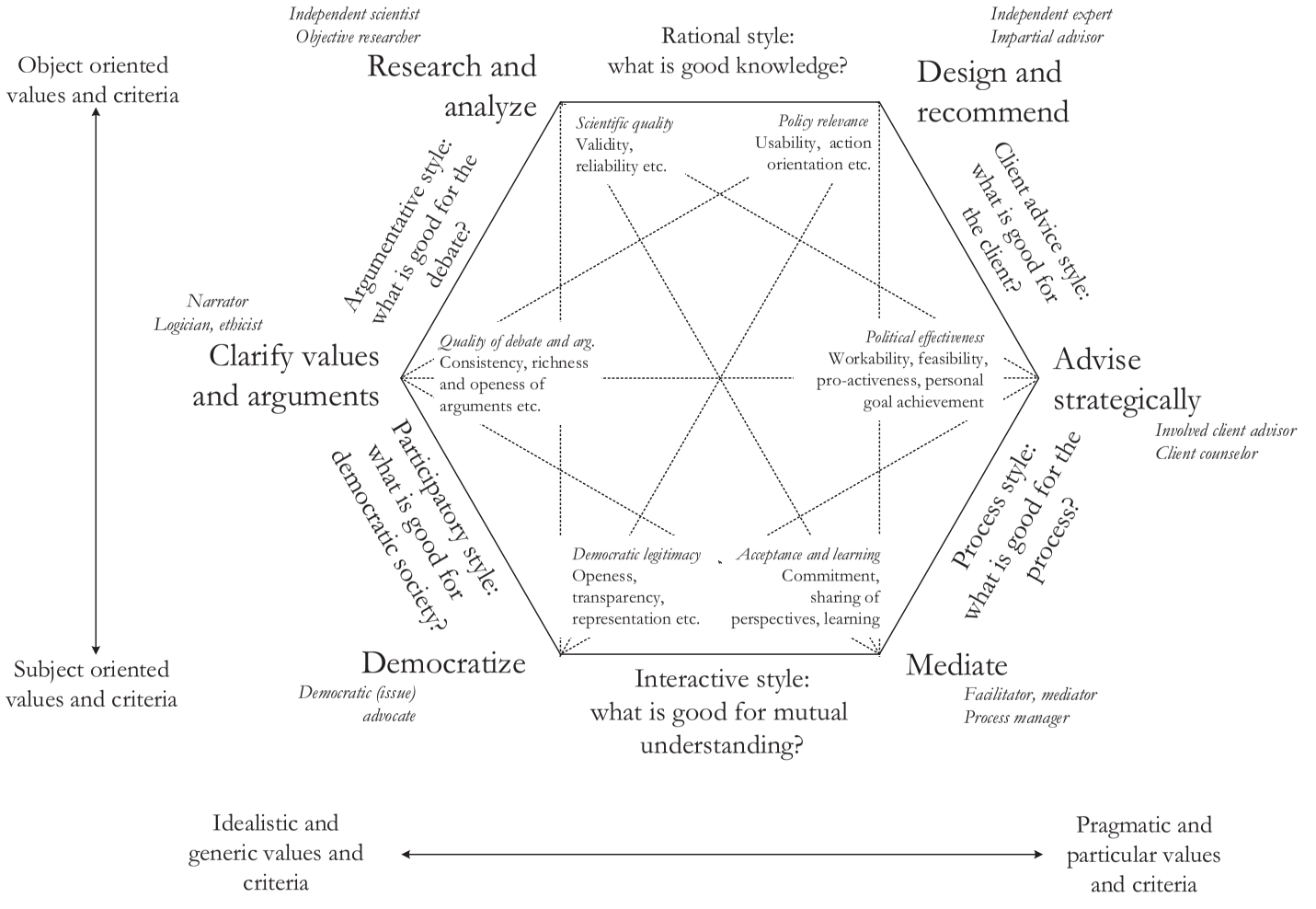

Figure 11.5 The Complete Conceptual Model in Which Policy Analysis Activities Are Related to the Underlying Styles, the Quality Criteria and the Policy Analyst's Roles

limitations, or conversely the richness, of the discipline. It is not our intention in this chapter to specify a preferred form of policy analysis, even if we were to have one. Depending on one's own position, one may accept the wide picture of policy analysis as depicted in the entirety of the model. But it is likely that many will argue that certain styles or activities are not (proper) policy analysis (e.g., Lawlor 1996; Walker 2009). For those critics, the hexagon may turn into a straight line, a triangle or a square. The problem, of course, is that there will be no disciplinary consensus on what activities and styles to cut from the hexagon and on what grounds. For every policy analytic style, there are both proponents and critics. Given the actual and desirable development of the various definitions of policy analysis, we are of the opinion that the discipline can better be defined too widely than too narrowly. The integrated conceptual model depicted in Figure 11.5 offers full scope without losing the unity of policy analysis and causing the disintegration of the field. The model offers the possibility to examine policy analyses already performed and to relate these to each other. The model seeks to provide a foothold, or a framework, for demarcating the wide field of work, regardless of the name under which the work had been categorized.

Design of a Policy Analysis

The hexagon model provides an overview of the wealth of possibilities of policy analysis studies and the interrelationships among them and can be of help in reflecting consciously and creatively on the design of a policy analysis. As a rule, policy analysis projects require a customized design. It is possible, however, to fall back on standard methods of policy analysis, although the choice and combination of methods will depend on the problem under examination. The model definitely does not seek to prescribe instrumentally how a policy analysis should be designed. The opposite is the case, because we advocate creativity and innovation in designing approaches, actions and methods. Innovative combinations of researching, designing, recommending, mediating, argumentation and democratization can be made.

For example, a rational style of policy analysis may be combined with a process style. This would 'interweave' analytical or scientific study in mediation processes among parties (de Bruijn et al. 2002). As a second example, the Institute for Water Resources (an organization within the US Army Corps of Engineers) developed a policy analytical approach for solving water resources management problems that it calls 'Shared Vision Planning (SVP)' (Cardwell et al. 2009). SVP is a collaborative approach that combines traditional 'research and analyze' and 'design and recommend' with structured public participation and collaborative computer modeling. Beall et al. (2011) explicitly relate SVP to the six policy analysis activities of the hexagon model.

We consider the design of a policy analysis to include the development of new methods of policy analysis so as to allow a good integration of sub-activities. In point of fact, the history of policy analysis is characterized by the repeated application of creative and intelligent combinations of methods; methods that originated in one domain are commonly translated into applications for other domains. The by now classical Delphi method and scenario method came about as methods for studying the future, but are currently used for strategic advice, mediation and even democratization in policy Delphis, interactive scenario methods and scenario workshops (Mayer 1997). Cross-impact techniques and stakeholder analysis techniques, which came about as methods for advising clients, now have interactive applications and are used for mediation. Consensus conferences, which came about as a method for study and mediation among top experts in medical scientific controversies, have been transformed into methods for democratizing and for public participation (Mayer 1997; Fischer 2000; Joss and Belluci 2002). Also, methods that were developed within specific disciplines can be combined in a multidisciplinary approach to addressing practically any policy problem.

Evaluation of a Policy Analysis

Each policy analysis activity is based (implicitly) on criteria concerning the quality and purposes of the activity. Therefore, policy analysis projects can be judged from a variety of perspectives. This may lead to different opinions about success or failure, quality or shortcomings (Twaalfhoven 1999; Goeller 1988). A substantively thorough and valid study might be unusable for a client. A brilliant and workable compromise that breaks a stalemate may be based on negotiated nonsense or may violate or manipulate the interests of legitimate participants. Conflicts like these are inherent in almost every evaluation of large policy analysis projects. In the design and evaluation, the policy analyst attempts to cope as well as possible with these tensions and dilemmas by making choices and/or by finding new routes.

Conclusion

This chapter has presented a conceptual model for policy analysis called the hexagon model, which is based on six archetypal policy analysis activities. This subdivision makes it possible to relate various policy analysis styles found in the literature to each other and to analyze the characteristics of and differences among the styles. Additionally, the activities provide pointers for evaluating policy analyses. By explicitly identifying the activities being carried out in the policy analysis, it is possible to identify success criteria for the work. The hexagon model seeks to map out transparently the enormous variety of different types of policy analyses and to allow them to be viewed in relation to each other. The model can also be used to design policy analysis studies. By making explicit which activities are relevant in a particular policy analysis, a conscious choice can be made for a certain policy analysis style and the policy analysis methods can be selected in a well-founded way for the contribution made by the method or technique to the activities to be carried out.

While the hexagon model provides pointers for reflection, design and evaluation, it is not intended to be a rigid, prescriptive model. Rather, the intention is for the policy analyst to be consciously working on the goal of the analysis in relation to the policymaking process, and to produce her own policy analysis design and evaluation.

Note

1. This chapter has been adapted by the authors from Mayer I.S., van Daalen C.E., Bots P.W.G. (2013) Perspectives on Policy Analysis: A Framework for Understanding and Design. In: Thissen W., Walker W. (eds) *Public Policy Analysis*. International Series in Operations Research & Management Science, vol. 179. Springer, Boston, MA, pp. 41–64. DOI: 10.1007/978-1-4614-4602-6_3. The material has been reused with the feedback and contribution of the authors.

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12
INSTRUMENT CONSTITUENCIES
Promoting Policy Designs[1]

Jan-Peter Voß and Arno Simons

Introduction

Policy design has long received academic attention as a technical challenge situated somewhere between science and art (Howlett, 2011; Eliadis et al., 2005; Peters, 1998; Weimer, 1992; Bobrow & Dryzek, 1987; Anderson, 1971; Tinbergen, 1956). Policy scholars engaging with design issues pick up the challenge of constructing strategies for public action strategies based on specific analytical understandings of policy problems and process. In a more ambitious orientation, they also set out to develop 'instruments' as standard solutions for certain kinds of problems. In this way, policy scholars themselves engage in *doing* policy design. They act as participants in the process, just like engineers and other experts who engage with processes of technology development with a view to create better designs.

Relatively recently, policy design has also become a subject of study as a social process in its own. This may be called a sociological turn in studies of policy design and governance (Voß, 2007; Lascoumes & LeGales 2007). It accounts for policy design as a bundle of practices and provides a view of specific *dynamics emerging in the making* of models and instruments. This includes the emergence of networks and fields of special expertise and services that are linked with the development of specific policy designs, as well as interactions between several such formations as they strive to realize and expand their designs.

The shift may be compared to approaches to the study of technology that emerged in the 1980s when social researchers started to investigate the construction of technology as a social process (Bijker et al., 1987). Rather than engaging with the engineering of wind turbines, say, and trying to improve their design, social research sought to reconstruct empirically what engineers and other actors do in articulating and promoting specific designs (Hughes 1983). This exhibited the interplay of different activities like visioning, analyzing, theorizing, modeling, prototyping, testing, evaluating, negotiating, organizing, lobbying, public relations work etc. Rather than substantially assessing functionalities, this kind of social research on the making of technologies is concerned with how functionality was *achieved by aligning the understandings and activities* of engineers, managers, financers, regulatory agencies and publics. The success of innovations, in this perspective, was no longer assumed to be objectively determined by the fitness of a specific design with regard to presumed purposes and given circumstances, but it was seen to be a product of meaning-making, mobilizing agency and social organization for promoting certain definitions of purpose and

for materially re-arranging circumstances in a way to make certain instrumental models work (Akrich et al., 2002a; Akrich et al., 2002b; Rip, 1992). Functionality thus involves various forms of social power activated in design processes that are embedded within cultural and material settings as they have historically gown and solidified (Rip, 2012; Nahuis & van Lente, 2008; Irwin, 2008; Staudenmaier, 1989; Hughes, 1983). Focusing on design-related interactions brings social dynamics into view, like the creation, stabilization, and breaking of path dependence (Garud & Karnoe, 2001) or the formation of specific social arrangements that are connected with the development of specific designs, like innovation networks or systems, technological fields, regimes, industries, communities or constituencies (Hekkert et al., 2007; van Merkerk & Robinson, 2006; Molina, 1995; Gelsing, 1992; Carlsson & Stankiewicz, 1991; Constant II, 1987; Hughes, 1987; van den Belt & Rip, 1987).

Based on studies into the making of policy instruments as 'designs on governance,' we have referred to such social arrangements around policy designs as 'instrument constituencies' (Voß, 2007, 177; Voß & Simons, 2014). They can be recognized by tracing practical activities contributing to the articulation and development of specific instrumental models of governing, and by analyzing patterns in which they connect, how connections stabilize and how they expand over time and across issue-specific policy processes and political systems. Empirical research shows that they can take on dynamics of their own and bring forward new forms of collective agency to actively promote the further development and expansion of 'their' specific design. Our aim for this chapter is to introduce the concept, portray empirical work that has been carried out so far, and highlight open questions and challenges.

The Concept of Instrument Constituencies

The interest of a sociology of policy design is to describe the constellation within which designs are articulated and promoted and to analyze the dynamics that lead some approaches to prevail over others. Stepping aside and shifting focus from the design object and problem to the design subject and process quickly reveals that design is much more than a mental process; it is a social and material activity usually comprising a set of heterogeneous actors. Social and historical studies of technology have revealed the constitutive interplay of engineers, managers, customers, regulatory agencies, financers, publics and consultants—not to forget prices, grid coverage, landscapes and weather, for example. In policy design, we find similar complexities of interaction opened up by stepping aside for a focus on the very process of constructing strategies and instruments. We find that they do not only exist cognitively as ideas, but also socially as human bodies performing certain practices of arguing, training, reflecting, writing, charting, calculating, presenting, organizing and so on, and that they use databases, printers, mobile phones, conference rooms, airplanes and a lot more stuff, without which strategies and instruments simply would *not happen*. Understanding design thus requires a look into the social relations and dynamics from which models of governing emerge, become articulated as instruments with particular functions and get realized in experiments in the lab and in the field (Muniesa & Callon, 2007; Callon, 2009; Voß, 2014; Voß & Schroth, 2018; Voß & Simons 2018).

The concept of instrument constituencies builds on the insight that any knowledge about specific modes of governing is made and actualized by specific actors in concrete practices. So-called instruments, tools or technologies of governance—broadly defined here as condensed and packaged knowledge about how to govern[2]—can thus be studied regarding their social life and the dynamics, sometimes indeed agency, that this life lends to specific ways of knowing and thus exerting governance. Knowledge about specific modes of governing, rather than being purely instrumental, also spurs social interaction and the formation of practices and organizations

that contribute to keeping that knowledge alive by communicating, practicing, developing and expanding it. The concept of instrument constituencies captures this "social life" of instrumental knowledges of governing. It offers new ways for studying policy change by allowing for an element of 'supply push' in policy change and the innovation of new forms of governance. The concept draws our attention to the ways in which specific models of governance gain momentum as they link up academic research strategies, new business opportunities or political agendas, and how they are actively promoted by specialized actors who come to live through and for the development of a specific governance instrument.

The concept was first introduced in a study of the historical innovation journeys of policy instruments for trading environmental emissions permits and for liberalizing network-bound utility services (Voß, 2007a; Voß, 2007b). It was taken up and more explicitly articulated by Voß and Simons (2014) and studied for other cases of tradable permit systems (Simons & Voß, 2015; Mann & Simons, 2014; Voß & Simons, 2014), experimental sustainability management (Voß, 2014) or social policy (Béland & Howlett, 2016), but also for instruments of political representation and legitimation, such as methods of public participation and deliberative democracy (Amelung & Grabner, 2017; Voß & Amelung, 2016). The concept has also been discussed in relation to existing concepts and frameworks, such as innovation networks, regulatory communities, epistemic communities, advocacy coalitions, policy subsystems or networks (Simons & Voß, 2017a, 2017b; Mukherjee & Howlett, 2015; Voß, 2007a, pp. 73–4, 177), models of the policy process, in particular Kingdon's multiple stream model (Simons & Voß, 2017b; Béland & Howlett, 2016; Mukherjee & Howlett, 2015; Voß & Simons, 2014; Voß, 2007a, pp. 81–5), or ideas and institutions (Béland, 2016).

In the following, we first introduce main tenets of the concept and locate its development in a shift from instrument as tools, to instruments as institutions, to instruments as webs of practices. Second, we discuss relations between instrument constituencies and the making of policy.

Main Tenets

Instruments Coming Alive

The concept of instrument constituencies fills a gap in our understanding of policy dynamics by pointing out social dynamics of instrumental knowledge-making and instrument design. This includes trajectories of policy design spanning several policy processes and even extending transnationally and into different domains. The concept therefore makes an important contribution to the policy studies literature (Béland & Howlett, 2016; Jordan & Turnpenny, 2015; Mukherjee & Howlett, 2015; Perl & Burke, 2015; Wolff, 2015; Jordan & Huitema, 2014a). Most importantly, the concept of instrument constituencies has the potential to make visible and explain a hitherto neglected form of agency behind specific knowledges about governance and their linkages with the innovation of political practices. It enables us to recognize what we may call the 'active availability' of policy tools, or of instrumental models of governance more generally. By this we mean that the development of instrumental options and their consideration as viable solutions to certain problems does not necessarily, and indeed not very often, follow from the diagnosis of problems—neither chronologically, nor in terms of stages in a sequenced process of rational analysis and problem-solving. Instead, by tracing the emergence, development and expansion of instruments over time with a view to the concrete practices that articulate and sustain them, we find that such tools or models have their own social histories and trajectories. They can develop a life of their own. Through their constituencies, they can become 'entrepreneurial' solutions that actively seek to nurture demand and give shape to policy problems.

In contrast to well-established notions of public policymaking as a sequenced process of rational problem-solving, authors like Kingdon (1984) have argued for an alternative understanding of policymaking in which problems and solutions lead an independent life, interacting with each other and with ongoing political struggles over offices and other institutionalized positions of power and influence. Policymaking, in this account, is a matter of creating linkages between the dynamics of these three streams by matching ambitions to seize institutional power with problem definitions and with policy models that can serve as solutions. Kingdon's notion of streams refers to flows of social interaction and bundles of practices that develop according to their own logics and depending on their own historical pathways, while at times interfering or linking up with each other (Zahariadis, 2007).

The rationalist default conception of policymaking as a process of problem-solving, where the development of solutions follows the identification of concrete problems, has also been scrutinized by other authors. While the rational problem-solving view appears to dominate public discourses of policymaking, many studies that focus on the actual practices of policymaking emphasize the apparent differences with such idealized conceptions and public accounts of the policy process (e.g. Hoppe & Colebatch, 2016; Peck & Theodore, 2010; Colebatch, 1998). Still, as Béland and Howlett (2016, p. 393f) point out, "the fact that solutions sometimes chase problems remains an anomalous observation upsetting the prevailing orthodoxy in the field." What shall we make of observations such as sweeping fashions like network access regulation for the liberalization of utility services and tradable permits for environmental protection (Voß, 2007a), or methods of small group deliberation for citizen participation (Amelung & Grabner, 2017; Amelung, 2012)? And what happens around abrupt U-turns in design orientations as part of such diffusion and convergence processes, like the European Union shifting from energy taxes to emissions trading around 2000 (Voß & Simons, 2014; Voß, 2007b; Christiansen & Wettestad, 2003)?

The social dynamics of instrument constituencies, we agree with Béland and Howlett (2016, p. 394), "holds the answer to this puzzle"; it makes the concept a powerful addition to the repertoire of policy studies (Mukherjee & Howlett, 2015). Conceptualizing instrument constituencies as emerging entities with dynamics of their own leads us to question the notion of passive and neutral instruments, waiting in the toolbox of government to be picked up as ideas or cognitive solutions to policy problems (Voß, 2007a, 2016a). Exploring social practices and agency behind instrument design, testing, development and evaluation helps to understand how instruments may come to shape the policy process according to their own logic. This perspective also provides an entry point for questioning instrumental discourses of policymaking. To avoid functionalist reductions, such as the erroneous assumption that policy instruments were passively waiting in the "toolbox" of government, one needs to engage with the social dynamics of instrument design. Only by mapping relations and diagnosing the inclusion and exclusion of particular concerns can one open up seemingly technical processes of instrumental design for a wider public discussion of ontological assumptions, ethical orientations and political constellations built into them.

Practices of Knowing Governance

The crucial point of focusing on instrument constituencies is to shift perspective of analysis from instruments as mere cognitive constructions, bundles of ideas or tools, to instruments as constituted by social practices, collectively pursued activities that give rise to and are embedded in specific socio-material configurations.[3] These configurations develop according to their own dynamics and, as they develop reflexive capacities, can generate a type of agency that is distinct from other kinds of actors that are well known in policy studies, such as advocacy coalitions or

epistemic communities (Voß, 2007a, pp. 73–4; Voß & Simons, 2014; Mukherjee & Howlett, 2015; Simons & Voß, 2017a, 2017b).

Instrument constituencies comprise practices and actors that are oriented towards developing, maintaining and expanding a specific instrumental model of governing. The existence of instruments in practices becomes visible by zooming in from a perspective on policy instruments as ready-made concepts onto the ongoing practical work and social interactions that produce, maintain and promote that knowledge. The notion of instrument constituencies thus re-conceptualizes instruments, designs, options, models, solutions and other kinds of functional models of governing in terms of their social life, that is, regarding the actors and practices that 'do' these models and that only actualize the knowledge that describes them, so that the instrument becomes a part of political reality (for a conceptual shift from ready-made knowledge to knowledge in-the-making, see Latour, 1987; for the turn to practices of making governance knowledge see Voß and Freeman, 2016b).

From Tools to Institutions to Instrument Constituencies

Policy instruments are often treated as neutral devices at the disposal of policymakers. This "functionalist orientation" (Lascoumes & Le Gales, 2007, p. 2) provides guidance to policymakers as well as analysts. It provides a "productive illusion" (Voß, 2007a, pp. 39–40). The apparent productivity of the functionalist view helps to explain why the metaphor of policy instruments as mechanical tools remains powerful in orienting policymaking despite fundamental criticism over several decades regarding the limits of control and the obscuration of politics through claims of functional necessity. The technical framing of policy solutions works to carve out apparently "apolitical spaces" of policy design that provide room for maneuver in political negotiations between antagonistic camps (Voß, 2007a, p. 181). As Lascoumes and Le Gales (2007, p. 17) note, this can be exploited strategically by political elites: "the debate on instruments may be a useful smokescreen to hide less respectable objectives, to depoliticize fundamentally political issues, to create a minimum consensus on reform by relying on the apparent neutrality of instruments presented as modern." Questioning the functionalist view on policy instruments, several authors have put forward the claim that policy instruments are constructed in (not always free and symmetrical) social interaction, consist in practices and have a 'life of their own' (e.g. Voß & Simons, 2014; Peck & Theodore, 2012; Lascoumes & Le Gales, 2007; Voß, 2007a).

Lascoumes and Le Gales (2007, p. 8) have argued that implemented policy instruments are "institutions in the sociological meaning of the term"—that is, "a more or less coordinated set of rules and procedures that governs the interactions and behaviors of actors and organizations." As institutions, policy instruments structure public policy "according to their own logic" (p. 10). They have effects in virtue of providing a specific design for (re)organizing society, or specific parts of it. To give an example, environmental markets instruments envisage reorganizing activities that affect the environment by cutting it up into tradable goods, so that affecting activities can be calculated and regulated through the mechanisms of a market, e.g. the trading of pollution rights or biodiversity credits. Such designs are never neutral, as they carry specific worldviews, ontologies, values (e.g. decomposability of naturally emerging systems of life, human agency as utility maximizing calculation, market liberalism as a philosophy of collective life), and as they always provide a specific problematization of the concrete issue at hand, e.g. pollution as an effect of market failure to be solved by the creation of another market (Mann, Voß, Simons et al., 2014; Simons et al., 2014; Stephan & Lane, 2014; Mann & Simons, 2014; Robertson, 2006). In addition, each policy design implies a specific construction of its target population (Schneider & Ingram, 1990).

What is important here is the observation that instruments do not only cognitively organize governing strategies, but that they shape practices, allocate roles and create social positions. The scripting of a performance that enacts a particular social reality rests with the specific ontology and theoretical assumptions about society and governing that are inscribed in any instrument (Voß, 2016a). With the implementation of the instrument, its underlying ontology becomes installed as a material-cultural infrastructure of political interaction (Voß & Freeman, 2016a). An instrumental design may then work as a "prospective structure" (Van Lente & Rip, 1998), linking up with diverse expectations of various actors regarding the fulfillment of specific political goals, business opportunities or academic careers.

This perspective on instruments as prospective structures is only rudimentary as included in Lascoumes and Le Gales' framework, which focuses on explicit social roles that are created by the implementation of an instrument in a specific site. What is more, linked to instrumental models of governing are implicit expectations and promises that exist beyond specific sites of implementation. Emissions trading, for example, provides roles for permit traders as soon as a market for emission permits is created. In addition, there are specialized think tanks, policy consultants or builders of market infrastructure who get assigned a role as advisors, technical service providers, conference organizers, etc. They benefit from the emissions trading instrument, even without being explicitly foreseen in the functional model. Such actors may not only strive within in the context of a singular implementation processes but across several sites at which the emissions trading instrument is debated, adjusted with local conditions and taken up for implementation.

Taken together, these actors make up what we call the instrument constituency of emissions trading (Simons & Voß, 2015; Voß & Simons, 2014; Voß, 2007b). They develop stakes in linking up with the production and promotion of the instrument and are not necessarily restricted to a particular emission market (some of them may even actively seek to set up more emission markets to expand the scope for their activities). Instruments assemble their constituencies by working as prospective structures (van Lente & Rip, 1998), which interest actors into aligning their agency towards the development, retention and expansion of the instrument. To expand on Lascoumes and Le Gales' notion of policy instruments having a 'life of their own,' we like to shift the analytical perspective in a dual way: first, from specific sites of implementations to translocal spaces and historical dynamics of instrument making and, second, from instruments as sets of rules to instruments as webs of practices, which we call instrument constituencies, and which may develop agency in producing and promoting their instrument.

The translocality of governance instruments is grounded in their "double life" (Voß, 2007a, p. 55ff) as abstract functional models and implemented arrangements of governance. While this distinction is implicit in most conceptions of policy instruments, its implications, especially for translocal dynamics of policy design, are only rarely explored (Voß & Simons, 2014; Simons et al., 2014). Instruments as models refer to abstract blueprints such as 'flat tax,' 'cap and trade,' 'basic income' or 'citizens jury,' and they can be grounded in specific social theories, such as rational choice or deliberative democracy. One could thus call this the "paper appearance" (Voß, 2007a, p. 55) of governance instruments, the theoretical models, claims and data produced in scholarly treatises, scientific simulations and evaluations of field trials. Instruments as implemented arrangements, on the other hand, refer to the actual doing of governance in a specific policymaking context, a specific configuration of material practices with wider effects. The European Emissions Trading System would be an example. It constitutes a market for greenhouse gas emission allowances and "works on the 'cap and trade' principle" (European Commission, 2014). The World Wide Views on Biodiversity would be another example, as an exercise of public participation comprised of 3000 citizens in 25 countries to produce an input to international negotiations based on models of deliberative democracy (Amelung, 2015).

Both appearances of governance instruments, models and implementations, deserve attention, because their interaction unfolds what we call the 'innovation journey' of particular instruments (Voß, 2007a, b). Models and implementations can reinforce each other. On the one hand, functional models of governing can guide the formulation and implementation of collective strategies. The existence of policy blueprints, backed up by analytical work and expertise, makes it possible for policymakers to model their policies after such blueprints and to legitimate such choices as 'state of the art' policymaking (Simons, 2016a;b; Simons et al., 2014). On the other hand, the uptake and use of a blueprint in a specific context creates a framework for assembling actors into new constellations, training skills and building organizational capacities, and it establishes the relevance of the model and of further work to develop it. Uptake for implementation increases the blueprint's visibility and confirms it, by anchoring it in a wider set of practices and providing a stage for the model to shine. This again feeds into further work to develop the model and corroborate functional claims, e.g. with data from additional implementation cases. The sort of self-enforcing feedback loop that can emerge from this interaction between governance models and their implementation drives innovation journeys forward and can be understood as a form of 'realizing' new forms of governance 'between lab and field,' as a co-production of science and politics (Voß, 2016a; Voß, 2014).

The double life of policy instruments affects the structure and dynamics of instrument constituencies. Whereas some constituency actors and activities may focus on specific implementations of the instrument and form something like a local, that is, implementation-specific instrument constituency, others may focus on developing or advocating the instrument as a general model for policymaking, e.g. on the UN or OECD level. Yet, as empirical research shows, the boundaries between local and translocal sub-constituencies are fluent and many constituency actors and activities will do both at the same time (Simons & Voß, 2017b). Instrument constituencies become mediators of linkages between laboratory-based modeling work and policymaking in the field by seeking opportunities and mobilizing collective action for implementation and by using them for developing and corroborating the functional claims of the model.

Looking at the influence and agency of instrument constituencies both on the local and translocal level reveals a life of governance instruments that goes beyond the notion of instruments as institutions. In the following section, we discuss five aspects in the relation between instrument constituencies and established research interests in policy change that deserve closer examination.

Instrument Constituencies and the Making of Policy

Theoretical and empirical research on instrument constituencies is growing (see Simons & Voß, 2017b for a recent overview). We here discuss five questions:

1) How do instrument constituencies form?
2) How do instrument constituencies influence change in governance?
3) What makes instrument constituencies strong?
4) How do instrument constituencies relate to the policy process?
5) How can we engage with the politics of instrument constituencies?

How do Instrument Constituencies Form and Hold Together?

Through its dual appearance as models and implementations, which creates a multi-faceted prospective structure, a policy instrument can attract and generate agency in its support and thereby grow a "social constituency" around it (Voß, 2007a, p. 177). The latter is the social life

of the former. An actor or a practice is part of an instrument constituency, because it relates to the instrument in a mutually constituting fashion. The instrument provides a purpose and frame of relevance for actors and practices, which in turn only enact, give life to and materialize the instrument. The instrument constituency thus exists "for and by the instrument" (Voß & Simons, 2014, p. 738). So how do such constituencies form and hold together?

As we also discussed elsewhere (Simons & Voß, 2017a, 2017b, 2015; Voß & Simons, 2014; Voß, 2007a, pp. 179–80), one can differentiate between two types of promises that work in different ways to recruit support for policy instruments. On the one hand, functional promises refer to the ability of policy instruments to achieve public goals. Such promises are debated at the center of the mainstream literature on policy instruments and its functionalist orientation (Lascoumes & Le Gales, 2007). Structural promises, on the other hand, are often less visible, but equally important. They are implied in specific structural features of a future world that an instrument is expected to bring about, especially regarding the roles and positions this world offers for different actors. To give an example, whereas a functional promise of emissions trading would be that it provides pollution control at least-costs, a structural promise might be that the emissions trading instrument creates demand for new types of services and expertise or a reason for a new regulatory body to be installed or that it may prevent a strong role of the state in taxing environmental emissions. Another example is in the case of public deliberation methods. Here, the functional promise is to produce legitimate representations of public opinion and thus serve to qualify collectively binding decisions as democratic (or criticize them as undemocratic). However, the structural promise may be related to increased opportunities for academic researchers and professional services required for the organization and moderation of such processes, or the opportunities that public deliberation provides to shield decision-making against uninvited, wild forms of public participation.

Establishing an instrument involves a great number of different tasks that can each attract the interest of various actors and connect various specific practices. Following instruments along their journeys by tracing events in which they have been articulated and shaped, we become aware of a host of different activities, such as academic theorizing and testing, experimenting in laboratories, simulations and field trials, consulting, training, organizing conferences, publishing journals, mobilizing and negotiating alliances, doing public relations work etc. In all these activities, the instrument is (re)produced and supported, that is, brought to life as an instrument.

Yet, it would be inadequate to understand such activities as being neatly integrated through shared frames and values, as one might be tempted to do when thinking of the "instrument as institution" (Lascoumes & Le Gales, 2007). Rather than being connected through shared understanding, constituency members and specific practices are embedded within different framings, orders of value, institutional logics etc. as established for different fields of academia, consulting, marketing, party politics, campaigning, etc. They are also situated within different regional contexts, if instruments travel transnationally (Peck & Theodore, 2012; Clarke et al., 2015). For an economist, the instrument may look different than for a political scientist, a public administrations officer, an NGO activist or a business manager, even if they use some of the same terms, some basic articulation of a model or cite some of the same authors. The practices that are involved here comprise all the diverse kinds of work that are needed to maintain the instrument and establish momentum. Instrument constituencies thus comprise a wide field of university departments, policy-oriented research institutes, think tanks, law firms, consultancies, training schools, event agencies, publishers, public relations agencies etc. In terms of institutional embedding, some are more deeply embedded in politics with linkages to parties or movements, some link up with institutions of academic research, others are more commercially oriented towards

selling special 'technical knowledge' for whoever buys it. Most of these only become visible by looking through and behind the instrument, by attending to the actors and practices that produce the policy papers, manuals and checklists, legal expertise, projections, numbers, model simulations etc.—all the material of 'analysis' that makes a governance instrument an instrument, or a policy option an option.

This fluently fades into activities of assembling actual material technology. Any governance instrument also implies and requires specific material configurations to make it work. This may be special software programs, conference technology, surveillance and measurement devices, administrative infrastructures or scrubbers, social housing, highways or weapons and border installations. Devising these things in a way they help to materialize the functional model is an activity that belongs to the instrument, even if there is little institutional connection. The instrument creates a rationale, a need and a market, and the provision of fitted technologies is constitutive for instruments to become more than theory, but there is not necessarily a shared framework of norms apart from general contract law etc. The connection is rather by working on and with the same objects, very broadly framed only by an instrumental story for pegging out the societal purpose of those collaborations.

All this is to emphasize the fact that heterogeneous actors can become attracted by different structural promises related to the development and implementation of an instrument. Consultants and companies may seek new business opportunities arising from the spread and implementation of the instrument, academics may find their career path in developing the theoretical foundations of the instrument, regulatory bodies or think tanks may develop instrument-related positional profiles. As an object that connects heterogeneous actors and activities, the policy instrument around which the constituency forms can be understood as a 'boundary object' (Voß & Simons, 2014; Star & Griesemer, 1989).

Existing research suggests that structural promises are at least as important for the stability of an instrument constituency as functional promises. While the latter can attract actors in supporting a specific policy instrument only temporarily, as long as the problem remains salient or until it is perceived to be solved or another instrument arises as a better solution (Perl & Burke, 2015), structural promises can promote an instrument and bind support even when particular problems lose attention or appear to be solved or when functional promises shift. Maintaining a position or demand for special skills and services can be a motivation for actively engaging even in the making of new problems and functionalities in order to keep up momentum and secure wider public and political support for continuing with instrument-related activities (Amelung & Grabner, 2017; Simons & Voß, 2015; Mann & Simons, 2014; Voß, 2007a).

How do Instrument Constituencies Influence Policy Change?

While there is a tendency in the mainstream policy studies literature to treat policy instruments as ahistorical and passive devices at the disposal of policymakers, more sociologically oriented research like ours has shown that policy instruments have a social life of their own through their constituencies. As Jordan and Huitema (2014b, p. 911) remark, "policy instruments are not 'given' in the same way that a spanner sits in a toolbox; they have to be nurtured, pushed forward and hence given meaning in particular contexts." This is why, in order to understand how policy instruments develop and take shape as tools of governance, we need to study the work and influence of instrument constituencies, just as we study epistemic communities or advocacy coalitions in order to understand how policy problems arise or political programs change. Instrument constituencies take on "independent social dynamics which become part of the overall process of

governance change" (Voß, 2007a, p. 177). So how exactly do instrument constituencies influence the innovation journeys of the policy instruments they form around?

Let us begin by emphasizing that constituency development is itself part of the innovation journey of a policy instrument. As we discussed in the previous section, instrument constituencies emerge out of the entanglement of various practices involving and attracting heterogeneous actors. And the relationship between an instrument and its constituency is recursive in the sense that the instrument and the work related to bringing it alive give rise to the constituency while the constituency engages in the development, support and spread of the instrument. Through their constituencies, policy instruments gain socio-political momentum because they are advocated from within. Instrument constituencies are thus not only a key by-product but also a major driver of the innovation journeys of policy instruments.

An instrument constituency can influence the development of an instrument in a number of ways. Governance instruments, we explained, have a 'double life': as functional models and as implemented policies. The innovation journey of a policy instrument can be understood as the process in which these two appearances of policy instruments evolve with each other in close interaction (Voß, 2016a; Voß, 2014; Simons et al., 2014). The constituency can play a key role in the mediation between modeling activities—'in the lab,' so to speak—and implementation activities 'in the wild.' Constituency actors may be involved with explicating and advancing the theory behind an instrumental design, also in relation to its implementations, e.g. by specializing in simulations of potential implementations or by conducting evaluation studies of existing implementations. Other constituency actors may find their niche in the actual implementation of an instrument in a specific policymaking context, e.g. by providing certain socio-technical infrastructures, such as trading platforms for emission credits, or by consulting the implementation process as instrument experts.

An instrument constituency thus influences the innovation journey of a policy instrument by creating a 'supply push' dynamic (Voß & Simons, 2014). Having studied the innovation journeys of several different policy instruments, we find a dynamic of 'supply push' similar to the one discussed for technological innovations (e.g. Dosi, 1982). By this we mean that policy instruments are not only selected based on demand by newly arising problems, shifting ideologies or power constellations, but also because demand becomes created by endogenous dynamics of instrument development. As the social life behind instruments, constituencies actively push for their solution. In many observed cases, constituencies actively market their instruments to relevant policy actors, especially when windows of opportunity arise.

Connected to this is the observation that through such constituency-induced supply push dynamics, policy instruments may, metaphorically speaking, start chasing problems and making problems. This happens when constituency actors see structural promises in expanding their instrument's scope to other policy fields. For example, in the case of emissions trading, several specialized consultancies and service providers, who had been active in early US emissions trading systems, participated during the 1980s and 1990s in making a case for market-based solutions to the then upcoming problem of climate change (Simons & Voß, 2015; Voß, 2007b). Another related example is the expansion of pilot projects for the 'joint implementation' of climate protection commitments into the Clean Development Mechanism (CDM) as a transnational market for emission credits (Schroth, 2016). How policy dynamics are triggered by emerging research fields is clearly visible in the case of sustainability innovations and transition management (Voß, 2014). Yet another example is the pushing of debate about the democratic deficit of liberal-representative institutions by specialists involved in the development and provision of citizen participation methods (Amelung & Grabner, 2017; Voß & Amelung, 2016).

What Makes Instrument Constituencies Strong?

An important but tricky question in the study of policy instrument constituencies is how and when a constituency gains or loses power and influence. Existing research on the matter suggests several relevant aspects, but more research is needed to validate these and to identify potential other sources of power and influence. Here, we would like to discuss three related aspects: functional and structural promises, reflexive coordination leading to institutionalization and socio-material infrastructure.

A first aspect is the above-mentioned ability to generate promises and linked expectations. Instruments hold explicit functional promises, such as goal fulfillment, cost-efficiency or justice, and may thereby attract supporters. In the context of modern science-based cultures of governance (Ezrahi, 1990) and against the background of programmatics of evidence-based policymaking (Straßheim, 2014), the ability to create functional promises is closely linked with the capacity to produce scientific evidence and thus with the mobilization of resources for carrying out experiments (*in silico*, *in vitro*, *in vivo*), establishing facts and bringing them into circulation (Voß & Schroth 2018; Simons, 2016a, 2016b; Voß, 2014). Functional promises, while not as important as structural promises in keeping constituencies together (see above), provide a key mechanism for constituencies to gain wider public support and influence in the policy process.

Earlier, we also commented on the role of structural promises in the development and endurance of instrument constituencies. Because structural promises help to attract actors to partake in instrument constituencies, they also affect a constituency's potential to become influential, because the more actors come to 'live off' the instrument—that is, find their 'habitat' in the development and diffusion of an instrument—the more effort they are likely to invest for pushing that instrument. Note, however, that this can set in motion self-enforcing dynamics. A constituency that grows because it provides structural promises may become more powerful and influential, may succeed in broadening the scope of its instrument and thereby offer even more structural promises. An unresolved question is how certain instruments differ in respect to the structural promises that they can offer, and how this influences their potential to become accepted and widely implemented designs. This could, for example, provide an (additional) explanation for the success of market instruments that create new commodities and opportunities for private profit.

A second, related aspect is the extent to which a constituency self-organizes as a constituency. Authors like Howlett and colleagues (Béland & Howlett, 2016; Mukherjee & Howlett, 2015) conceive of instrument constituencies as collective actors. And our own work at times suggests this line of thinking. However, here we would like to emphasize again that a constituency is not per se a collective actor, but that it can become one. Our point is to stress that collective actor qualities cannot be taken for granted. While structural promises may provide opportunities to capitalize on and nurture certain practices and draw actors into shared activities related to the development and spread of a policy instrument, there may or may not be episodes in which that constituency enacts its collectivity as a collective actor. Attachment through structural promises does not necessarily imply that constituency members also develop a self-reflexive awareness of their collectivity and articulate the shared interest in coordinating themselves as an instrument constituency.

We can see this when looking at the history of policy instruments like emissions trading (Simons & Voß, 2015; Voß, 2007b), conservation banking (Mann and Simons, 2014), the Clean Development Mechanism (Schroth, 2016) or transition management (Voß, 2014), as well as instruments like methods of public participation (Amelung & Grabner, 2017; Voß & Amelung, 2016). At earlier stages of the journeys of these instruments, constituencies began to form but without much self-organization. Only at later stages did self-organization arise, when constituency actors

articulated a collective interest in developing and diffusing 'their' instruments—that is, the social realm within which these instruments are regarded as a valid option of policymaking.

Self-organization can take many forms and is characterized by reflexivity. Over time, constituency actors tend to become reflexive of the fact that they share an interest in the instrument's retention and expansion and therefore start to reflexively pursue the management of interdependencies emerging from their joint engagement with an instrument. This form of reflexivity may then lead to two things. In an outward direction, it can lead to the coordination of activities geared toward the development and spread of an instrument, such as collective lobbying. Inwards looking, reflexivity may lead to constituency integration, e.g. by establishing communication channels such as conferences or online platforms.

Such coordination may lead to the establishment of constituency institutions and organizations, such as specialized conferences, fairs, mailing lists, internet platforms, boards and associations but also education and capacity building programs, where constituency members come together on a regular basis to learn, exchange news and experiences, form collective positions and coordinate their public outreach. In effect, instrument constituencies can, through coordination, become coherent and powerful collective actors "who strategically market their solutions, for example, by engaging with problem discourses, recruiting important supporters, or seeking to outcompete other instruments for a dominant position in the 'toolbox of policymaking'" (Voß & Simons, 2014, p. 740). Reflexive coordination of constitutive elements and actors for strategies of collective action can lead to the development of constituency-internal institutions and organizations.

For instrument constituencies, a third source of power and influence is the socio-material infrastructures they build in the process of developing and expanding policy instruments (Simons, 2016a, 2016b; Voß, 2014, 2007a, pp. 118, 159, 170, 176, 185). Mobilizing again the distinction between policy instruments as policy models and as implemented policies, we can also make a difference between two types of infrastructures: those that help to sustain or expand an instrument as a generic policy model and those that help to sustain or expand an instrument as a policy arrangement in a concrete setting (Simons et al., 2014; Voß, 2007a, pp. 175–6). To sustain and expand a policy instrument as a generic model, constituencies may construct "socio-cognitive infrastructures" that consist of academic associations, university degrees, conferences, laboratories and networked data and texts (Voß, 2014; Voß, 2007, p. 176). Instrument constituencies can produce and use networks of documents and data to exert policy control "at a distance" by disseminating authoritative policy models throughout the world (Simons, 2016a, 2016b; Simons et al., 2014). This can lead to a situation where 'the data' or 'the literature' in favor of a specific governance model becomes widely acknowledged as the 'evidence base' for that model. Supporters can then point to this evidence base, which resides in a transnational sphere, as a source of authority to support their claims, for example concerning the necessity to implement the model in a specific context.

When policy instruments become implemented in practice, they lead to the construction of concrete policy arrangements. In line with Lascoumes and Le Gales (2007), we can think of such arrangements as social institutions because they enable and constrain the agency of actors. But just as sociologists explore the socio-material dimensions of social institutions (Pinch & Swedberg, 2008; Latour, 1991), we also need to explore the socio-material dimensions of implemented policy arrangements. Examples of how this could look can be found in studies on the materiality of liberalized utility sectors (Voß & Bauknecht, 2007), environmental markets (Callon, 2009; MacKenzie, 2009) and methods of citizen participation (Bogner, 2012; Lezaun & Soneryd, 2007). As these studies show, the implementation of a policy arrangement entails material tinkering of various sorts. In the case of environmental markets, environmental 'goods and bads' need to be

made measurable and commensurable through a complex measurement and calculation apparatus. Trading of environmental permits requires a trading infrastructure linked to databases or stock exchanges (examples are IT firms as members in IETA). Citizen deliberation is increasingly facilitated with wireless computer networks and special moderation software (see product description on IFOK webpage).

Any of these requirements is a potential field of activity for an instrument constituency. The construction of such infrastructures is not only a valuable business case but can also be used as a means to inscribe certain theories, values and interests into a socio-material setup, which enables and constraints the agency of many. Such 'politics of the material,' resulting from the actors' capacity to inscribe values and interests into socio-material infrastructures, is in fact the key reason why policy scholars should attend to the socio-material dimension of policy instruments both as models and as implemented policy arrangements. It is here that linkages with the broader field of science and technology studies open up (Voß & Freeman, 2016a).

How Do Instrument Constituencies Relate to the Policy Process?

The dynamics of instrument constituencies can be reflected in a Kingdon-like multiple-streams model of the policy process (Simons & Voß, 2017b; Voß & Simons, 2014; Voß, 2007a, pp. 81–5). Recently, Mukherjee and Howlett (2015) argued that instrument constituencies are one of three concepts in the policy analysis literature that help to explain the agency behind the type of streams Kingdon had in mind. Asking "who is a stream?," Mukherjee and Howlett (2015) identify epistemic communities, instrument constituencies and advocacy coalitions as the principal agents of Kingdon's problem, policy and politics streams, respectively. Because instrument constituencies "are united by their adherence to the design and promotion of specific policy instruments as the solutions to general sets of policy problems," the authors write, they should "not to be conflated with Sabatier's or Haas' notions of advocacy coalitions or epistemic communities" (p. 70). By advocating governance designs and policy solutions independently of problems or issues, instrument constituencies play a unique role in the policy process. They constitute the agency behind the policy stream postulated by Kingdon and others and must therefore be differentiated from other policy actors such as epistemic communities and advocacy coalitions.[4] Building on our own attempts to distinguish instrument constituencies from other collective policy actors (Voß & Simons, 2014), Béland and Howlett propose a trifold conceptualization of independent policy actors and activities in juxtaposing instrument constituencies, epistemic communities and advocacy coalitions. Whereas instrument constituencies engage in the development of models and techniques, epistemic communities (along with social movements, media, artists and wider publics) engage in the development of problems and advocacy coalitions engage in identity construction, mobilization and coalition building in struggles for institutionalized power positions.

Instrument constituencies are active during most phases of the policy process, not only during agenda setting and policy formulation (Simons & Voß, 2017b). It is important to see that instrument constituencies have their own 'biographies' independent of particular policy processes as conceived in a model of problem-solving stages. Instrument constituencies, at least at a later stage of their expansion, persist beyond particular policy processes and engage with several processes, even across issue domains and different political systems. They thus span different policy processes and establish translocal linkages between policymaking practices within specific contexts. Moreover, instrument constituencies are more than just inventors of policy solutions; they are also implementers and evaluators. In fact, they work on their governance innovation in all registers, from invention to adoption and evaluation (Voß & Simons, 2014; Jordan & Huitema, 2014b; Voß, 2007a). And while instrument constituencies indeed are the dominant actor in the policy stream,

Table 12.1 Comparison of Policy Subsystem Components

Name	*Source*	*Composition*	*Activities*
Epistemic communities	Haas (1992)	Scientists and issue experts, NGO activists, public agencies	Developing conceptions of problems/goals
Instrument constituencies	Voß and Simons (2014)	Scientists and design experts, consultants, administrators and technicians	Developing suites of tools and techniques
Advocacy coalitions	Sabatier (1988)	Politicians, parties and legislators, interest groups	Developing identities, interests and ideologies

Source: Based on Béland and Howlett (2016).

as Voß (2007, pp. 81–2) and Mukherjee and Howlett (2015) propose (or competing actors, if there are other instrument constituencies active in relation to a specific problem and within a particular political system), they also help to re-define problems and mobilize political support as a means to advocate their solutions. The same could be true, in reverse, for epistemic communities and advocacy coalitions, whose role we have not elaborated on here. Further research is needed to understand the interaction of these three policy actors and to consider their interrelation in various political environments (May, 1991).

How to Engage With the Politics of Instrument Constituencies?

In terms of the impulses that the concept of instrument constituencies may give to policy studies, a last point is the identification of new sites and forms of reflexive engagement with ongoing processes of governance change that it allows. Part of this is to raise public awareness of the politics involved in the design, experimental testing and expansion of specific instrumental models (Voß, 2016b; Voß & Schroth 2018). As much as a view of models and instruments in terms of the practices and actors who make and sustain them reveals that the instrument emerges from and is shaped in specific social dynamics, we are led to ask what the selectivities are and the exclusions that occur in these processes. If we drop the assumption that knowledge about governance emerges in a purely evolutionary process where it is selected by objective conditions of political reality alone, and if we thus acknowledge that the dominance of specific instrumental designs has a lot to do with social interactions in which models of governing are articulated and made forceful, then we have to ask: Have the instrumental options that are offered for policy choice indeed been rightly articulated considering all relevant concerns? Are the worlds that are produced by putting them in practice desirable also to those who are not involved in the process of making them, and to those who are not persuaded by their structural promises? To put it briefly, the concept of instrument constituencies leads us to de-technicize and to re-politicize the making of governance knowledge and the design of instruments.

An understanding of governance instruments in terms of functional models, whose strength does not rest in their capacity to mirror a given reality but in their capacity to cater support and align practices to create a reality as described by the instrument, may be called a 'performative' understanding (Voß, 2014, 2016a). It concedes that questions of instrument design and choice are not really epistemological questions of matching models with a given reality. Of course, knowledge making is also not only a matter of social construction and beliefs, the strengths of which depend merely on consensus or cultural dominance. It is rather that we come to see instruments as programs for reality-making, as blueprints, so to say, for the reconfiguration of human practices, in a way that the theoretically described models and their functional effects become

real. Instruments are about technologically configuring and controlling social interactions. This may first only be the case in theoretical imaginations, computer simulations or laboratory experiments, but as instruments develop, the world in which they are practiced to exist may expand, within both research and academia, but also in public administration, consulting services, IT infrastructures, implementation industries, educational programs etc. (Voß & Schroth, 2018; Voß & Simons, 2018).

What does that mean for the way in which we engage with the development of governance instruments as policy scholars? If we cannot take instruments to enter the political process from the outside but see their making as part of the political process, we should turn to the making of instruments (not only their formal choice and installation) as a site of the politics of policymaking and institutional design. Policy scholars should thus empirically dig up the processes in which decisions are made in the process of producing knowledge and garnering support for certain instrumental designs, for example by focusing on seemingly technical controversies among specialists or between specialists and critics and reconstructing the ways in which such controversies are closed, i.e. who wins and how.

A second step, however, would then be to diagnose the ways in which the politics of instrument development is carried on and to engage with it from a normative point of view. This is basically about evaluating this politics in democratic terms and articulating strategies for reducing imbalances in how diverse societal perspectives, along with their concerns for desired functionalities and feared side-effects, are reflected in the design process. Extending the involvement of policy studies scholars from the process of policy choice to the process of instrument development is important, because later, when instruments are pitched against each other during policy formulation phases within the context of specific policy processes, many decisions, and the work undertaken to create the worlds in which instruments can function, are already 'black-boxed.' It is then often only for their predicted effectiveness and efficiency to reach one specific policy objective that instruments are evaluated, while wider and deeper transformations that come along with materially installing the 'ceteris paribus' conditions that only allow the replication of the functional effect of the model are ignored (Voß, 2016a). We here have a similar constellation as with other more conventional types of technology development in fields like medical, transport, agricultural or energy technology. It is for this black-boxing and the increasing entrenchment of technologies as they mature (Collingridge, 1980), and for the 'collateral realities' that they produce (Law, 2012), that technology assessment methods have increasingly moved 'upstream.' They do not any longer seek to ask questions about the allowability of ready-made technologies but rather to open up the design and development process for a greater diversity of actors to articulate their needs and concerns (Guston, 2014; Rip et al., 1995).

The concept of instrument constituencies invites creative ideas by policy scholars about how such concepts of constructive technology assessment may be translated for democratizing the politics inherent in the design and development of instruments as programs for creating certain types of collective order. Steps in to this direction have been explored by the Innovation in Governance Research Group, which provided the intellectual habitat for our study and conceptualization of instrument constituencies. We developed and tested a methodology of constructive innovation assessment in two workshops: 'challenging futures of biodiversity offsets and banking' (Mann, Voß, Simons et al., 2014) and 'challenging futures of citizen panels' (Mann, Voß, Amelung et al., 2014; Voß, 2016b). The workshops took inspiration from Constructive Technology Assessment (see also the precursor Voß et al., 2006). About 25 actors with different positions within the instrument constituency and outside of it were invited to identify and discuss 'critical issues.' Discussions were supported by alternative scenarios of future pathways of instrument development that exposed some of the in-built selectivities and tensions that we found in our studies of

the historical and current development of those instruments. The product is an 'extended innovation agenda' that exposes 'critical issues' for future design and development of those instruments that concern worldviews, values and interest rather than epistemological or technical questions. Bringing this extended innovation agenda into circulation enables citizens to engage with instruments in other capacities than as technical experts, and it may stimulate wider and more diverse publics to engage with the construction of model designs for governance (cf. Marres, 2007; Mann & Voß, 2018; Voß, 2016b).

The 'challenging futures workshops' provide an example of how policy analysts may extend approaches of participatory or deliberative policy analysis from problem-oriented engagements with the policy process (Fischer & Gottweis, 2012; Hajer & Wagenaar, 2003) to also include instrumental design-oriented engagements with ongoing processes of innovation in governance. Many other concrete ways may be imagined by which the concept of instrument constituencies may not only enable analytical descriptions of the social dynamics and politics of instrument development but also the diagnosis of problematic aspects of how this politics is carried on, and the development of strategies for engaging and intervening with the dynamics of instrument constituencies and how they give shape to instruments.

Much of the political work of instrument constituencies tends to be disguised as technical or scientific. As a result, important design decisions with implications for people affected by development and implementation of the instrument become black-boxed. Policy scholars should not only study the effects of policy instrument constituencies but also opt for a reflexive and, if required, critical engagement with them.

Conclusion

A perspective on policy design as a social process sheds light on the emergence of instrument constituencies as social formations with dynamics of their own. This draws attention to and provides insights into dynamics on the 'supply side' of policymaking. Policy instruments, it turns out, are not only 'active' or 'alive' because they contain scripts for reordering society—a fact that is captured in the notion of policy instruments as institutions (cf. Lascoumes LeGales 2007)—but also because they gather a constituency comprised of practices and actors oriented towards developing, maintaining and expanding specific designs on governance (Voß & Simons, 2014; Voß, 2007). Through such constituencies, policy instruments can develop a life of their own, partly shaping preferences and actively enrolling allies. The concept thereby helps to explain the often-observed paradox that solutions sometimes chase—or even make—problems, although the former are meant to emerge as answers to the later. As Béland and Howlett (2016, p. 3) contend, this phenomenon may "not at all [be] extraordinary and exceptional but in fact commonly may be the norm."

In this chapter, we introduced the concept and some pioneering research work. Instrument constituencies exemplify key insights to be gained from a sociological turn on policy design. It makes policy designers themselves an object of study and shows how social dynamics of their interactions drive and shape the policymaking process. This offers a reflexive perspective on policy design. It questions claims of distanced observation and neutral technicality and raises issues of responsibility and accountability with regard to how policy designers are involved with creating political realities (Voß & Freeman, 2016a). At the same time, it helps policy designers to grasp analytically a long-neglected aspect of the policymaking process and thus also improve their knowledge of the field in which they operate, including the interactions among competing constituencies and how they influence the policymaking process. Taking account of the social dynamics and of the reality-shaping aspects of design work, while abandoning the illusion of

neutrality, may indeed contribute to creating better designs: less presumptive, more cautious, less technologically insulated, more politically argumentative, less artificial, more robust.

Notes

1. This chapter is based on our original chapter in *Policy and Society* (Simons & Voß, 2018). The chapter is used here under the terms of the Creative Commons Attribution License (CC BY 4.0).
2. This definition includes policy instruments meant to achieve specific policy goals (e.g. market-based instruments for climate emissions reduction) but also instruments of the policy process, related to aspects such as orchestration and decision-making, impact assessment and evaluation, and to instruments of legitimation such as particular models of democracy, specific procedures of political representation, citizen participation or public relations.
3. For a general concept of social practices, see e.g. Schatzki et al. (2001), Shove et al. (2012) and Jonas and Littig (2017).
4. Through their particular focus on policy solutions, instrument constituencies can also be distinguished from other conceptualizations of collective subsystem actors, such as issue networks, iron triangles, policy communities or policy networks (e.g. Jordan, 1990).

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13

POLICY DESIGN AND POLICY ADVISORY SYSTEMS

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Policy design requires knowledge and understanding of the functional and political dynamics of policy sectors and polities, making policy advice an essential component in the study of policy design. There is a long history of examining policy advice in the study of public policy and public administration. Early theorizing on policy advice was based on a dichotomous logic of 'politics' demanding advice and 'experts' providing advice, representing 'two communities' (Caplan, 1979) demarcated by a 'gap' (Caplan, 1979, p. 460) that was not easy to overcome. Essentially, such thinking focused on which actor would (and should) have the final say—political decision-makers for the sake of legitimacy or experts for the sake of rationalization (or technocracy) (Habermas, 1968). Advisors and those to be advised were treated separately. Traditionally, policy studies and public administration scholarship considers bureaucrats as key policy advisors. In some jurisdictions—in particular in the Anglophone Westminster systems—bureaucracies were even seen as holding a 'monopoly of policy advice' (Peters et al., 2000; Rhodes and Weller, 2001). Advice from other sources has always complemented bureaucratic advice, however, with various types of advisors being involved in various kinds of knowledge-transfer activities organized in a variety of forms, ranging from research agencies and advisory boards to ad hoc commissions and single academics reporting on particular issues. It is the notion of the 'policy advisory system' introduced by Seymour-Ure (1987) and expanded on by John Halligan (1995) that informs more recent advisory scholarship. This concept sees the government at the core of a complex nexus of various advisory actors inside and outside government—hence including bureaucrats, academics, consultants, NGOs, think tanks and political advisors to the government. Policy advisory systems have become a key concept to study policy advice. The concept of policy advisory systems takes a synergistic view of advisory arrangements by referring to an interlocking set of advisory actors with a particular configuration that provides information, knowledge and recommendations for action to policymakers (Halligan, 1995). Earlier empirical accounts usually focused on specific advisory actors such as bureaucrats or policy units. While providing useful insights in the nature of policy advisory activities, those studies overall demonstrate that advice is provided by a multitude of actors, the configuration of which varies across policy sectors and jurisdictions. The configuration of policy advisory systems depicts a more accurate picture of advisory practices than studies emphasizing single advisory actors. The structure of a policy advisory system in a specific sector or jurisdiction also helps better understand which actors are more influential than others. Last but not least, the understanding of policy advice as taking place in a

complex web of actors—each of which provides particular types of knowledge—acknowledges various properties of the contemporary nature of policy advice such as the politicization of knowledge or an emphasis on creating consensus and legitimacy (as opposed to authoritative knowledge transfer and rationalization).

The chapter provides an overview of policy advisory system scholarship. It first introduces what policy advice is. Next, the chapter reviews the theoretical state of the art of advisory system research, and it then reviews the empirical literature on advisory systems and system change. The chapter concludes by discussing the relevance of advice system scholarship for policy design and the study thereof as well as the linkages between policy advice and policy design. The chapter focuses on how changes in the nature of policy advice affect policy design and policy design studies.

What Is Policy Advice? Policy Advice and Policy Advisory Systems

In its most generic understanding, policy advice denotes expertise-based recommendations to policymakers on courses of action. It usually involves problem analysis, information or data gathering and expert opinion formation based on available knowledge and information (Halligan, 1995, p. 139; Peters and Barker, 1993, p. 2). Advisors can give solicited or unsolicited advice to the government, support the government's policy directions or take a highly critical perspective. Moreover, advice can come in many different forms and in various temporal settings: Advisors give oral advice on very short notice, most notably to a politician they work closely with (e.g. special advisors). Other advisors provide written reports that are delivered on a regular basis—for example, annual economic forecasting reports issued by the German Council of Economic Experts. Still others issue written reports after long periods of preparation on an irregular basis and/or add special reports to ordinary reports, as for example the Intergovernmental Panel on Climate Change (IPCC) does. Some advisory bodies are established on a permanent basis, while others are only set up to advise the government on a particular policy project. Policy advice is given by individuals as well as by collective actors organized in various forms such as research agencies, commissions, councils or think tanks.

Not least due to this variety, policy advice covers a wide range of activities and refers to various types of knowledge, including knowledge on politics, power dynamics and political gaming, professional policy expertise and scientific knowledge. Substantial parts of the literature on policy advice study scientific policy advice, how advisory knowledge is generated and processed in the 'science-policy nexus' (Hoppe, 2005; also Halffman and Hoppe, 2005; Hoppe, 2009; Hoppe and Wesselink, 2014; Jasanoff, 1990, 2005; Korinek and Veit, 2015; Lentsch and Weingart, 2009). This strand of research centers on conflicts of "the scientist in government" (The LSE GV314 Group, 2017, p. 2) and studies if and how scientists cope with evidence and potential uncertainties in the realm of policymaking (for a literature analysis, see Spruit et al., 2014). Scientific advisors are considered to be the 'fifth branch' (Jasanoff, 1990) of government, playing the role of an 'honest broker' (Pielke, 2007).

The government's use of knowledge is by no means a simple task (Weiss, 1979; Daviter, 2015). By emphasizing the 'gap' between policymakers and experts, early theorizing on policy advice such as the 'two communities theory' (Caplan, 1979) essentially represented models of linear knowledge transfer, in which advisors possess more or less objective knowledge of how to solve the policy problem at hand and 'just' have to communicate this knowledge to those policymakers seeking to base their decision on the best available knowledge. Those early 'engineering models' (Knorr, 1977), which assumed an instrumental use of mainly technical advisory knowledge by policymakers, were replaced by the 'enlightenment model' of Carol Weiss, which emphasized

conceptual knowledge use altering basic assumptions and core premises of decision-making (Weiss, 1977, 1999). Rather than pre-structuring policy choice based on empirical analysis and prediction, policy knowledge serves to provide "insights into the nature of social problems" (Weiss, 1995, p. 141).

Overcoming simplistic models of linear knowledge use, more recent work on science-policy interactions views advice as boundary work. That is, advisors' roles are not about "speaking truth to power" (Wildavsky, 1987), but more about 'making sense together' through the constant interaction of participants from both worlds. They continuously engage in 'demarcation,' i.e. constructing and maintaining boundaries and 'coordination' through which the two sides provide mutual orientation and manage expectations (Hoppe, 2005, 2009; Jasanoff, 1987; Korinek and Veit, 2015).

Thinking about policy advisory knowledge and its use in broader terms helped "overcome a rationalist bias" (Daviter, 2015, p. 494) in the earlier work on knowledge utilization as well as policy advice in which advice was exclusively seen to help solve policy problems. Yet, while this advisory function has not vanished, policy advice is now viewed as serving to legitimize policy choice—inter alia by providing an expertise-based ground for policymakers to justify policy choices (Peters and Barker, 1993, p. 2; van den Berg, 2017; Vedung, 1997; The LSE GV314 Group, 2017; Weiss, 1979). Which knowledge is considered legitimate, and how, is deeply embedded in national political culture, as most prominently argued by Jasanoff's concept of 'civic epistemology' (Jasanoff, 2005; see also Jasanoff, 2011; Beck, 2012).

Studying policy advice and knowledge use as taking place through a policy advisory system addresses the link between a multitude of advisory sources and national political, institutional and cultural imprints, and "transcends the boundaries of internal government expertise and knowledge activities" (Howlett and Migone, 2013a, p. 241). The concept of knowledge regimes is similar, but not identical, to that of policy advisory systems. Knowledge regimes are considered as "the organizational and institutional machinery . . . with which policy analysis, recommendations, and other ideas are produced and disseminated to policymakers" (Campbell and Pedersen 2014, p. 325). They reflect a "sensemaking apparatus" (Campbell and Pedersen, 2014, p. 3), the outcome of which depends on the established policymaking and production regimes in each jurisdiction (Campbell and Pedersen, 2014, p. 18). Whereas the concept of knowledge regimes relates to the macro-level production of policy ideas, the concept of policy advisory systems focuses on the organization and institutionalization of advice. The concept of policy advisory systems allows for analytically combining the power dimension in policymaking and the knowledge dimension of policies. Although transferring knowledge to government is by no means a trivial or simple task, policy advisors pre-structure the ideational basis of policies and pre-select the set of alternatives that ultimately reach policymakers' desks for decision-making. Policy advice often helps to build expert and sectoral consensus. It is in this regard that the configuration of a policy advisory system in any given jurisdiction or sector matters for policy design and the study thereof. The advisory system configuration sheds light on the (potentially) crowded 'design space' inhabited by a variety of actors with more or less clear views on the promises and pitfalls of courses of action to be taken.

Theorizing on Advice Systems: From the Inside-Outside Dichotomy to System Dynamics

In its early version, policy advisory systems were distinguished along two dimensions: according to their location either inside and outside government, and according to the degree of government control over advisory actors (and their practices) (Halligan, 1995, pp. 140–1). In this view,

Table 13.1 Halligan's Locational Model of Advice System

	Location	*Government Control*	
		High	*Low*
Internal	Public service	Senior bureaucrats Central agency advisors/strategic policy unit services	Statutory appointments in public service
	Internal to government	Political advisors (personal offices) Temporary policy advisory units Parliaments (e.g. a House of Commons)	Permanent advisory policy units Statutory authorities Legislatures (e.g. US Congress)
External		Private sector/NGOs on contract Community organizations subject to government grants and appointments Federal international organizations	Trade unions and interest groups Community groups Confederal international communities/organizations

Source: Adapted from Halligan (1995).

the public service represents the core of the policy advisory system. The "internal-to-government category" (Halligan, 1995, p. 140) also includes temporary and permanent policy units and ministers' offices, varying according to their exposure to government control. A wide range of private actors, including consultants, think tanks and academics, inhabits the external government category (Table 12.1). In this "spatial logic" (Craft and Halligan, 2017, p. 49), the influence of advisory actors depends on their proximity to government. In contrast to single-actor studies, this understanding of policy advice as taking place in a more or less complex arrangement of actors and practices also provides a better understanding of systematic variation across sectors and jurisdictions. For example, advisory systems can rely predominantly on the merit bureaucracy, or they could be dominated by political appointees (Halligan, 1995, p. 141).

The configuration of the policy advisory system shapes who is involved in policy design decisions and structures the type of knowledge available in design decision-making settings.

While locational models—in particular the insider-outsider distinction—help to 'map' actors of policy advisory systems and to reflect on their relative potential impact on decision-making (see for example various contributions in Blum and Schubert, 2013; Head and Crowley, 2015; Veselý et al., 2016), purely locational models have been criticized in recent years for overestimating the significance of organizational location (Craft and Howlett, 2012, 2013; Howlett and Migone, 2013a, b). In particular, the 'content' of advice is now seen as impacting influence as well. As Craft and Howlett argue, the locational model highlights the fact that insiders and outsiders produce and supply substantially different advisory products (Craft and Howlett, 2012, p. 83). In increasingly complex and pluralistic advisory systems inhabited by an increasing variety of actors in polycentric governance systems, advisory content represents a more appropriate conceptual dimension to understand influence (as compared to purely locational models). Essentially, content-based models relate the type of advice to the respective advisory actor and—just as important—the types of advice are related to influence. Including 'content' in the study of policy advice thus allows for a more accurate conceptualization of advisory practices and in particular takes into account changes in governance structures. For example, a clear-cut politics-administration dichotomy in traditional understandings of the Westminster systems mirrors the insider-outsider logic of advisory influence. Such a dichotomy is less clear-cut in contemporary governance

arrangements, in which partisan advisors are involved in overviewing policy agendas, shaping policy development and coordinating across ministerial departments (see contributions in Eichbaum and Shaw, 2010; Craft and Halligan, 2017). It is especially crucial to understand the content of policy advice in the study of policy design because content systematically varies across advisory actors and, hence, policy designers can extrapolate what advice to expect from which actor and better understand the roles of different advisory actors.

Empirical changes in policy advisory systems triggered studies of the change dynamics of policy advisory systems. Scholars discuss various drivers for change in policy advisory systems. First, policy advisory system change is considered a result of an ever-increasing complexity in contemporary policymaking. Here, an increase of so-called wicked issues—policy problems that are difficult to address due to simultaneously high levels of complexity, uncertainty and ambiguity—requires intense coordination, raises the demand for knowledge from various sources and intensifies contestation (Head, 2008; Head and Alford, 2015). Globalization affects policy advisory systems, as it can increase the number of policies that are not bound to the territorial boundaries of a nation-state but instead require transnational policy responses. Moreover, policymakers require knowledge on how to cope with the particular challenges of a globalized economy (Campbell and Pedersen, 2014). Simultaneously, mediatization—the increasing predominance of media logics in all areas of social life—raises demands by politicians for media advice. Considerations on how to 'sell' policies are now included in the early stages of governmental policy formulation. Second, for quite some time, scholars have observed that scientific findings and data have become more important in policymaking, known as evidence-based policymaking or scientization (Jasanoff, 1990; Nutley et al., 2007). While evidence-based policymaking is criticized from various angles (Head 2016), basing policy decisions on sound scientific or social scientific data has evolved into one of the key requirements against which policy output is assessed. Third, the wave of New Public Management (NPM) reforms sweeping through OECD countries in the 1980s and 1990s led to fragmentation of the government and public sector, prompting demands by politicians for politicized advice as well as for advice by multiple sources (as opposed to relying on the civil service as the sole provider of advice). With this turn towards managerialism, the policy-oriented roles of top civil servants were turned into managerial ones in many countries. As a result of the NPM reforms and the later austerity policies, the capacity for sound advice eroded in the public sector. This occurred predominantly in the Anglo-American systems (Painter and Pierre, 2005; Craft and Halligan, 2017). Policy system change can occur both as the result of conscious reforms of the advisory system and as an emergent process of adaptation to changing environmental conditions (Hustedt and Veit, 2017; Veit et al., 2017).

Induced by these drivers for advisory system change, scholars found two prevailing changes in policy advisory systems: externalization and politicization (Craft and Howlett, 2013; Veselý, 2013). Externalization refers to the increasing relevance of non-governmental actors in policy advisory systems. Despite considerable empirical variety in the concrete configuration of policy advisory systems across sectors and jurisdictions, the bureaucracy has long been considered the most influential actor in policy advice studies in many Western government systems (Aberbach et al., 1981; Meltsner, 1976; Page, 1992). This core position of bureaucrats as the most intimate (and hence most influential) advisors has however been challenged by a plurality of external advisors in the last two decades, as discussed later.

Politicization refers to the increasing relevance of explicitly political considerations in advisory practices demanded by elected politicians seeking to regain control over the government apparatus in the aftermath of NPM-induced fragmentation (Dahlström et al., 2011). Such advice is usually provided by ministerial—often partisan—advisors close to the minister or head of government. Over the last decade, a growing body of scholarship has found that those advisors

gained in numbers, size and relevance in many Western jurisdictions, coming under different names such as special advisors or exempt staff (see contributions in Eichbaum and Shaw, 2010; Hustedt and Salomonsen, 2014, 2017; Maley, 2011, 2017; Craft, 2016).

Empirical Variety: Anglophone Westminster Research Focus

It is important to note, however, that in empirical terms, policy advisory systems have always varied enormously—and still do. Hence, advisory system change departs from rather diverse starting points (Veselý, 2013). Policy advisory systems and change dynamics are much more intensely studied in the Anglophone world, mainly in the Westminster systems, than in other parts of the world, although there are still considerable research gaps.

In Westminster-style governments, policy advisory systems traditionally relied predominantly on the bureaucracy providing neutral technical advice to decision-making. Externalizing and ultimately politicizing and multiplying policy advice and policy advisory sources represent far-reaching changes at the expense of the traditional, neutral merit public service. In 1995, John Halligan described how externalization and politicization had simultaneously resulted in the professionalization of advisory competence outside the public service, the pluralization of advisory sources and a decrease in government control over sources of policy advice, leading the public service to engage more in the "politics of policy advice" (Halligan, 1995, p. 160). The policy analytical capacity of the public sector eroded: One of the few empirical studies on policy analytical capacity found that capacity in Canada is distributed unevenly across government (Howlett et al., 2014). In 'Assessing 30 years of Westminster policy advisory system experience,' Jonathan Craft and John Halligan compare advisory system change dynamics in Australia, Canada, New Zealand and the UK and find both externalization and politicization to be common across the cases. They also note differences in the tempo, sequence and intensity of change (Craft and Halligan, 2017). For example, the use of Royal Commissions declined in all four cases "as a result of a preference for managerialist and political alternatives" (Craft and Halligan, 2017, p. 54). The authors find partisan advisors as institutionalized parts of the Anglophone advisory system; however, there are considerably more partisan advisors in ministries and the center of government in Canada and Australia than in the UK, and they are less contested (Craft and Halligan, 2017, pp. 53–4; see also Maley, 2011; Craft, 2016).

Research on advice systems in continental Europe shows marked differences. In particular, a consensus- or compromise-based policymaking style and a tradition for neo-corporatism has implications for the configuration of the policy advisory system. Jurisdictions such as Belgium, the Netherlands and Germany do traditionally include representatives of interest organizations in governmental advisory bodies. They are seen as professional experts to be included and simultaneously to help find consensus on policy issues (Blum and Schubert, 2013; Fobé et al., 2013; Halffman and Hoppe, 2005; Krick, 2015). Yet, whereas Germany and the Netherlands share a neo-corporatist tradition, the advisory system change dynamics in the countries differ. Research on the Dutch case finds a decline of neo-corporatist advisory bodies, while research on the German case shows a still high significance of mixed advisory bodies, including academics and societal representatives (van den Berg, 2017; Veit et al., 2017). Moreover, the impact of managerial reforms on policy advisory systems varies significantly across Europe. In some countries, NPM reforms left their mark on the policy advisory system and eroded public service capacity (for the Dutch case, see van den Berg 2017), but others remain basically untouched by managerialism (see for the German case: Veit et al., 2017). Not much is known so far about the policy advisory systems of supranational organizations (Craft and Halligan, 2017, p. 57) apart from the European Commission, which receives advice from multiple sources: The cabinets of the Commissioners

and the Commission bureaucracy are complemented by a longstanding tradition to receive expert advice through a deeply institutionalized set of expert groups (Metz, 2013; Gornitzka and Sverdrup, 2011; Gouglas et al., 2017; Kassim et al., 2013).

Less research attention has focused on the external sources of advice than on advisors internal to the government. In particular, the emerging role of consultants and the role of think tanks deserve more attention. As a core element of the externalization trend, professional consultants have increased in significance in the policy advisory systems in many countries (Saint-Martin, 1998; Craft and Halligan, 2017; Howlett and Migone, 2013a, b, 2014; van den Berg, 2017). Empirical studies of Canada and the Netherlands show that policy consultants indeed provide advice. In Canada, they are more involved in process support than in advice on policy substance, while they do both in the Netherlands (van den Berg, 2017; Howlett and Migone, 2013b). Research on think tanks has experienced a recent revival. Established wisdom was that think tanks were most relevant in the US policy advisory system and less so in other parts of the world, but this picture has changed over time. Early research understood think tanks as "enclaves of excellence in which groups of multidisciplinary scholars and professionals work full-time on main policy problems" (Dror, 1984, p. 199) and compete for policy influence based on problem-solving capacity through analytical capacity and credibility (Smith, 1991). Over time, researchers devoted more attention to the advocacy role of think tanks, which are viewed as means of political contestation forming coalitions with political actors. In this view, think tanks seek policy influence in order to accomplish certain interests and policy goals and compete on the basis of political ideas (Rich, 2004; Stone, 2007). Empirical studies show that think tanks are playing an increasingly significant role in policy advisory systems outside the US and becoming "a global phenomenon because they play a critical role for governments and civil societies around the world by acting as bridges between knowledge (academia) and power (politicians and policymakers)" (McGann, 2016, p. 9; Campbell and Pedersen, 2014; Nachiappan, 2013). Recent research on advisory activities by think tanks focuses on their 'dissemination activities' (Kelstrup, 2017) and their strategic policy entrepreneurial role in policymaking. Here, think tanks are characterized as "organizations who develop innovative and creative policy solutions, generally act in both a strategic and opportunistic way, and are assumed to be more powerful in a fragmented and clustered policy space" (Fraussen and Halpin, 2017, p. 120).

Although starting conditions have been different and so are change dynamics, there is wide consensus that policy advisory systems have become more diverse and complex and that contemporary governments receive advice from pluralistic and polycentric advisory systems. Craft and Wilder argue that this increased pluralism and polycentrism leads to a blurring of the "inside-outside dichotomy" (Craft and Wilder, 2017, p. 216) and deserve to be theorized in a "second wave of advisory system scholarship" (Craft and Wilder, 2017, p. 231).

Scholarship on policy advice systems has progressed extensively in recent years, yet a substantial research agenda remains. First, with regard to change dynamics, more explanatory research is needed, explaining which factors account for specific sets of tempo, sequence and substance of change—next to path dependence and certain sets of administrative traditions. Second, while scholarship expanded the empirical domains in the study of advice systems, more empirical research is needed detailing the configuration of advice systems outside the Anglophone world and corporatist Europe—including countries on other continents as well as policy advisory systems of international organizations. One of the key questions in the future study of advisory systems is how a global knowledge infrastructure works and influences international and national policy advisory systems. Third, the interaction of advisory actors within an advisory system is understudied. Fourth, we do not know much about the performance, quality and efficacy of policy advisory systems or certain types thereof. Lastly, assessing advice system performance or quality

requires a more nuanced understanding of the significance and implications of variation in system configuration. Are some advisory systems better than others—and why? These research demands also speak to the policy design agenda, as elaborated in more detail in the concluding section.

Policy Advisory Systems and Lessons for Policy Design

Policy advice and expertise is of crucial significance for policy design and policy designers. Who provides what kind of expertise with what purpose? Answering this question in any given policy design arrangement or situation may help better understand the selection of available alternatives or policy instruments.

Thinking of policy advice as taking place through a complex, pluralistic and polycentric advisory system—including actors inside and outside government, in which multiple sources of advice co-exist, overlap and potentially compete for influence—matters for policy design and the study thereof in various ways. First, the advisory system arranges the flow of knowledge and information that policy designers require to consolidate coherent policies. Second, the advisory system defines the ideational background of policy instruments or alternatives on which policy designers built their designs. Third, the configuration of the advisory system and the links between the various advisory actors in a policy sector or jurisdiction also help better understand the origins and implications of policy alternatives and ideas available to policy designers. Fourth, the configuration of the policy advisory system organizes and selects actors involved in policy design arrangements, situations and decisions. Fifth, the selection of actors in an advisory system indicates advisory content and hence pre-structures the alternatives for policy design.

The study of policy advisory systems directs attention to a wide range of actors that are (potentially) involved in policy design. The more pluralistic and polycentric an advisory system, the more crowded the design space is likely to be and the more diverse the set of ideas available to policy designers. Moreover, policy advisory systems scholarship shows that it is not just the knowledge dimension of advice that is crucial in contemporary policymaking; the political or power dimension of advice is also key. The more pluralistic and polycentric the advisory system, the more struggles may occur about actual influence, but also about modes of reasoning about knowledge and information. Hence, policy design arrangements and situations may become objects of political contestation. Policy advisory system studies show that advice is not a purely technical matter; it involves various kinds of analytical and political activities and also serves legitimacy and consensus-building functions. In particular, in design situations of high uncertainty about future developments, policy directions and implications, policy designers may well pay attention to consensus-building through the advisory system. If no superior knowledge is available to policy designers, as is the case most often today, policy designers may turn to advisory formats such as consultations or stakeholder fora to get a clue about possible design scenarios that would be accepted within the policy sector and/or the wider public. In turn, this implies that the policy advisory system itself deserves careful and strategic design. Not much, though, is known to date about strategic design choices of this kind.

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14
POLICY DESIGN AND CONFLICT

Saba Siddiki

Introduction

Policy design is defined as either the process of policy formulation (Linder and Peters, 1984) or the content of policies that conveys to whom and how policy directives are applicable (Schneider and Ingram, 1997). Under both conceptualizations, policy design reflects policymakers' goals and decisions about how to allocate scarce public resources (Pierson, 1993). It is both a product of extant politics and an influencer of future politics (Lasswell, 1950; Lowi, 1964; May, 1991; Schneider and Ingram, 1993). Current policy design symbolically and/or materially emboldens or penalizes groups in society, thereby reinforcing or undermining existing political relationships. Further, policy design is situated within a broader social, political, policy and governance context and is affected by the inherent dynamism of the policy process. These various features of policy design, relating to the broader context in which it is embedded, can give rise to various types of conflict. Conflict is defined broadly as a disagreement or incompatibility. In the policy process, of which policy design is a part, conflict can manifest in disagreement or incompatibility among policy ideas, preferences, actions and/or attributes.

This chapter presents a variety of types of conflicts that can emerge in relation to policy design. The types of conflict relate to different aspects of the context of policy design. In particular, the discussion is organized around four types of conflict: policy design and stakeholder conflict, conflict in the behavioral assumptions underlying policy design, intra- and inter-policy design conflict and conflict among policy design and principles of democratic governance. The discussion of each of these types of policy design related conflict is informed by a review of theoretical and empirical scholarship on policy design.

Policy Design and Types of Conflict

Policy Design and Stakeholder Dynamics

The first type of conflict discussed in this section relates policy design to stakeholder dynamics. Stakeholders are defined as individuals or organizations from within or outside of government that have a vested interest in a policy issue and the solutions proposed to addressed it. Stakeholders typically take interest in a policy issue and related solutions because they are directly or indirectly

impacted by them. Typically, the array of stakeholders that engage in any given policy arena exhibit diversity in backgrounds, sectoral affiliations, worldviews, policy specific beliefs or policy design preferences, among other characteristics.

Analyzing the stakeholder dynamics underlying policy design has been an enduring theme in policy studies. When it comes to positioning policy design in relation to stakeholder conflict, policy scholars focus on the implications of stakeholder conflict on policy design, the implications of policy design on stakeholder conflict and/or the reinforcing relationship between stakeholder conflict and policy design.

Policy Design and Stakeholder Conflict

Some of the earliest scholarship linking policy design and stakeholder conflict used policy typologies as a platform for characterizing policies in relation to the political environment in which they were developed and/or implemented. More specifically, typology-based characterizations were intended to signal characteristics of interest group organization or structure, mobilization and policy reaction associated with the development and enactment of different types of policies. As Birkland (2011, p. 209), notes, "policy typologies [help] explain policy outcomes by explaining and predicting key aspects of the politics underlying these policies." Further, he explains that, "such typologies are useful in understanding how and why some policies are made the way they are, and why some groups do better than others in policy debates and actual enactment."

One of the most popular typologies in this scholarship tradition was developed by Theodore Lowi (1964). Lowi characterized policies as being distributive, protective (regulatory or competitive) or redistributive. In the language of policy design scholarship published later on, Lowi's distributive/protective/redistributive policy classification is meant to reflect the dominant policy instruments embodied within a policy design (where policy design refers more to policy content than to policy formulation). According to Lowi, policies, owing to their function, engage different types of stakeholders and relationship dynamics among them. Decision-making regarding different types of policies can be more or less visible, which also influences political dynamics prior to and following policy enactment.

The most contentious type of policy according to Lowi, with respect to stakeholder dynamics, are redistributive policies. Redistributive policies transfer resources (e.g., wealth, property, income, rights) from one group in society to another. Policy benefits are typically allocated to individuals belonging to certain groups in society. Examples of redistributive policies include social welfare policies. According to Lowi, redistributive policies engage government actors and interest groups (e.g., peak associations) in ideological conflicts about who should receive policy benefits and who should bear the costs of providing these benefits. Heightening the potential for conflict in the case of redistributive policies is the highly visible quality of decision-making relating to them. This idea is echoed later by Pierson (1993), who suggests that different types of instruments embodied in policy designs (e.g., direct vs. indirect taxes) are more or less visible to the public and therefore attract different types and levels of public reaction. Policies that are highly visible and are considered unpopular are likely to elicit higher levels of conflict.

Another popular typology developed around the same time as Lowi's is Wilson's (1973) cost/benefit policy typology. This typology classifies policies in terms of how widely or narrowly policy costs and benefits are distributed among different groups within society. Thus, like Lowi, Wilson broadly classifies policies based on the primary instrument(s) embodied therein. Emphasizing slightly different stakeholder dynamics than Lowi, Wilson's typology focuses on clarifying political pressures that public administrators (i.e., regulators) face when dealing with different types of policies and thus different potential sources of conflict. Additionally, Wilson

offers strategies that public administrators can employ to resist pressures from stakeholders that can undermine policy goals or values.

Lowi and Wilson's policy typologies, while offering a valuable foundation for assessing the relationship between policy design and stakeholder dynamics and conflict, characterize policies in relatively blunt terms. Policies as a whole are classified as being of one type or another and no attention is given to clarifying elements of policy design and/or how elements can enable policy characterization. Thus, precise expectations about how different elements of policy design connect with political dynamics generally, or stakeholder conflict, are not supported by these policy typologies. Various other limitations of these typologies have been noted, including, for example, the difficulty in assigning policies to just one category.

Because policy design is used to refer to both policy formulation and policy content, it is important to clarify that policy design within the context of Lowi's and Wilson's typologies is treated as the content of policies, as classification is based on what policies intend to do or their dominant instruments. Stakeholder dynamics in relation to policy design have also been addressed by scholars that conceptualize policy design in terms of policy formulation (Linder and Peters, 1984). In "Reconsidering Policy Design: Policies and Publics," May (1991) presents an approach for assessing the relationship between policies and policy design, where the latter is understood as policy formulation. May uses the somewhat less confining notion of a policy spectrum, or continuum, along which policies can be classified in place of a typology. May's spectrum contrasts policies with and without 'publics.' 'Publics' in this case refer to "identifiable groupings who have more than a passing interest in a given issue debate or are actively involved in the issue debate" (May, 1991, p. 190). Examples of publics include professional associations, producer groups, consumer groups and neighborhood groups.

May describes many implications of policy formulation and policy implementation with and without publics, highlighting the role of stakeholder conflict. According to May, conflict among policy stakeholders, or publics, within a particular policy domain on a particular issue is critical. Conflict indicates that an issue has attracted the attention of relevant stakeholders and thus may also be worthy of public attention. May (1991, p. 193) writes:

> By the time the conflict is translated into an issue on the governmental policy agenda, coalitions of advocates that influence political problem definitions and put forth possible solutions have been working on the issue for some time. By that time as well, the contours of policy responses and their implicit policy designs are already shaped. It is unlikely than an issue would reach sufficient prominence to place it on the policy agenda without some sense of problem definition and at least an implicit set of policy responses.

In contexts where policies do have publics, May posits that an important design challenge is developing policy proposals that effectively balance potentially competing interests of different policy stakeholders.

Around the same time that May introduced the policy design-publics spectrum, Pierson (1993) sought to elaborate further on how policies influence political behavior under the broad conceptual heading of policy feedback. Consistent with the perspective of other policy design scholars, Pierson (1993, p. 596) argued that "major public policies also constitute important rules of the game, influencing the allocation of economic and political resources, modifying the costs and benefits associated with alternative political strategies, and consequently altering ensuing political development." Pierson was particularly interested in highlighting the effects of policy on mass publics, as opposed to just on public administrators, policymakers and interest groups.

He builds on the ideas of Theda Skocpol (1992) by offering that policies influence the goals and capabilities of governmental and non-governmental policy stakeholders and mass publics. These types of policy feedback can elicit mobilizations (and counter mobilizations) by the policy-affected parties and potentially elevate the level of conflict among them.

Stakeholder Conflict and Systemic Policy Design Feedbacks

The policy design scholarship discussed hitherto posits the relationship among policy design, stakeholder dynamics and conflict as it relates to particular individuals or groups linked to a policy issue. Some policy design scholars extend this scholarship to address broader system-wide impacts of the consequences of this reciprocal relationship. Among them are Schneider and Ingram (1993). Schneider and Ingram conceptualize policy design as the content of policy. This content conveys policy goals, to whom policies apply, policy instruments, implementation instructions and an implicit causal logic connecting policy instruments and policy goals. They posit that, through policy designs, policymakers confer benefits and burdens to policy targets in ways that reflect their dominant social construction (or stereotype) in society and level of power. Policy targets interpret distributions of policy benefits and burdens as signals regarding their value in the policy process. Those targets that are consistently the recipients of policy burdens may perceive that they are not valued in the policy process and thus choose to limit their engagement therein. Schneider and Ingram are concerned not only with how policy design affects the participation of different groups of citizens in the policy process, but also the ramifications of disparate participation on democratic governance more broadly. To them, persistent disparate participation is indicative of a breakdown of democracy, or what they refer to as degenerative democracy.

The notion of conflict is central to Schneider and Ingram's concept of degenerative democracy. As a foundational point, Schneider and Ingram argue that one of the most problematic aspects of crafting policy design based on social constructions of different target groups in society is that social constructions themselves are often "conflicting and subject to contention" (Schneider and Ingram, 1993, p. 335). A critical question based on this supposition is, then: who sets the dominant constructions in accordance with which policy benefits and burdens are allocated through policy design? Conflict is also relevant when considering how policy benefits and burdens are to be conferred through policy design to more or less powerful policy targets with negative social constructions. According to Schneider and Ingram, the policy interests of negatively constructed targets and policymakers are likely to be at odds. Those powerful but negatively constructed targets can use their resources to overcome this tension and still secure policy benefits. In such cases, however, the conference of policy benefits will tend to be sub rosa (i.e., less visible) (Schneider and Ingram, 1997).

Policy Design, Stakeholder Conflict and Decentralized Governance

In many advanced democracies throughout the world, governance increasingly relies on formal collaborations among public, private and non-profit stakeholders in the policy process. Examples of such collaborations are task forces, expert panels, advisory committees and resource management councils convened by policymakers or public administrators to advise on policy design. The groups are often deliberately constituted of stakeholders that vary in terms of their sectoral affiliations, disciplinary backgrounds, social and material resources and policy perspectives. The establishment, constitutions and joint decision-making activities of such groups are typically governed through a public document (e.g. statute). The engagement of diverse sets of policy stakeholders in common policymaking venues can obviously elicit conflict—particularly

where participation in such fora is determined by appointment rather than a more deliberative nomination or voluntary process. Policy design can be instrumental in managing potential conflicts among diverse sets of policymakers. One way that policy design can accomplish this is by governing who is allowed to participate in collaborative policymaking venues. By ensuring balanced representation among policy stakeholders, for example, those in charge of policy design can minimize the potential for any one party to the collaboration to be overwhelmed by another.

Another option for managing stakeholder conflict in collective decision-making fora is to incorporate conflict resolution mechanisms into policy design. This is particularly relevant in decentralized governance contexts, but it is similarly applicable in centralized contexts. Schlager et al. (2012) highlight this point in their study of the design of water compacts designed to mitigate conflicts over competing demands for water among western U.S. states. Water compacts articulate voluntary and involuntary conflict resolution mechanisms that states engaged in water sharing disagreements can pursue.

A third option for managing conflict through policy design, relevant for decentralized and centralized governance contexts alike, is to narrow the set of allowable activities within a policy realm. This option focuses on disallowing activities that are likely to lead to conflict. Policymakers can also narrow the scope of objectives addressed through policy design to those that are expected to be the least contentious. Whereas all these strategies require the forethought of policymakers, the establishment of conflict resolution mechanisms can be viewed as a reactive measure to managing stakeholder conflict. The latter two strategies (narrowing choice sets and objectives) can both be viewed as pre-emptive measures to lessen the likelihood of stakeholder conflict.

Conflict in Behavioral Assumptions Underlying Policy Design

The previous section focused on policy design related conflict as linked to the broader policy stakeholder context. This section focuses on policy design related conflict as it relates to a narrower set of policy relevant actors: policy targets. More specifically, the focus here is on conflict, or a lack of agreement, between expected and actual behavior of policy targets. This disagreement can stem from faulty assumptions regarding the behavior of policy targets, upon which policy design is anchored. Whether conceptualized as policy formulation or policy content, policy design largely centers on articulating the right instrument for compelling behavior in ways that support the attainment of policy objectives. As Schneider and Ingram (1990, p. 510) note: "public policy almost always attempts to get people to do things they otherwise would not have done, or it enables them to do things they might not have done otherwise." Thus, policy design must necessarily be based on implicit or explicit behavioral theories.

At the outset of this section, two points are noteworthy. First, conflict relating to the behavioral assumptions underlying policy design has related descriptive and normative dimensions. The descriptive dimension of this conflict pertains to the revealed mismatch between expected and actual behavior. That is, there is disagreement between how policy targets are expected to behave and how they actually do behave, which could be informed by inappropriate behavioral assumptions. The normative dimension concerns the consequences of this mismatch. Operationally, behavior that is out of sync with policy directives is considered non-compliance. Non-compliance is salient insofar as it can undermine the attainment of broader public policy objectives. In such cases, actual policy impacts conflict with desired policy impacts. Second, it is important to note in the context of this discussion that policy targets include non-governmental policy targets (e.g., organizations, firms, citizens) as well as governmental actors (e.g., policy implementing, monitoring and enforcement personnel).

This section begins with a brief introduction to behavioral assumptions relating to different types of policy instruments. Some policy scholars have addressed this topic specifically in relation to policy design (Schneider and Ingram, 1990). One of the most succinct summaries of major behavioral assumptions relating to policy instruments is offered by Schneider and Ingram (1990). Consistent with other policy design scholars, they assert that policy instruments are a key element of policy design. They are the key mechanism for behavioral control. Examples of policy instruments include regulations that mandate behavior with the threat of monetary or criminal sanctions, subsidies or taxes that incentivize or dis-incentivize policy relevant behaviors, or suasion that encourages policy-relevant behavior by highlighting the moral virtue of such.

Instruments thus vary in their coerciveness and are rooted in distinct assumptions about what motivates human actions—for example, how individuals respond to incentives, authority and emotive appeals. Some guiding assumptions relating to policy instruments are that individuals are moved by incentives and sanctions, which can take various forms, as these affect the expected payoffs of different types of policy action. Further, individuals are driven by deeply held values and beliefs and respond favorably to instruments that drawn upon these. Applying the right instrument for a particular policy context, considering the match between the behavioral assumptions motivating the instrument and policy targets, is crucial for limiting the types of descriptive and normative conflicts noted in the preceding paragraphs. Indeed, as Schneider and Ingram (1990, p. 527) pose to policy design scholars: "By focusing on the behavioral dimensions of policy tools found within policy designs, political scientists may be able to advance knowledge about the conditions under which target populations will contribute to preferred policy outcomes."

Other relevant behavioral considerations, linked loosely to both policy design and policy instruments, are presented by Mazmanian and Sabatier (1980). Mazmanian and Sabatier address these within the context of an implementation framework that points to various problem, statutory and non-statutory factors that challenge policy implementation—that is, contribute to conflict between expected and actual policy behavior and/or impacts. Within the context of their framework, Mazmanian and Sabatier highlight the importance of considering the extent of behavioral change required of target groups through policy instruments. They posit that the greater the amount of behavioral modification required to achieve statutory objectives (i.e. by instruments articulated in policy design), the more challenging policy implementation will be.

Another behavioral consideration Mazmanian and Sabatier highlight is the diversity of behavior being regulated through a particular policy. The instruments articulated in policy design may be appropriate for regulating some types of behavior, but not others. Where policies are meant to address diverse types of behavior, policy instruments may be under-articulated in policy design. A third behavioral consideration raised by Mazmanian and Sabatier is the size of the population of policy targets whose behavior is being compelled with a particular policy instrument. Regarding this point, Mazmanian and Sabatier write:

> In general, the smaller and more definable (isolatable) the target group whose behavior needs to be changed, the more likely the mobilization of political support in favor of the program and thus the more probable the achievement of statutory objectives.
>
> *(p. 543)*

At the conclusion of this section, it is important to note that mismatches between expected and actual policy target behavior, or expected and actual policy impacts, are influenced by a constellation of factors beyond just those referenced in this section. The general behavioral assumptions highlighted above should be considered in concert with factors reflecting the personal, organizational and broader social and environmental contexts in which policy targets are making decisions.

Inter- and Intra-Policy Design Conflicts

This section presents a third type of policy design related conflict, defined here as inter- and intra- policy design conflicts. Treating policy design as the content of policy, inter-policy design conflict refers to disagreement among the designs of policies that are applied in concert to address common issues in a common policy domain. This is relevant because policymakers often simultaneously apply multiple policies in a particular domain to achieve policy objectives (Howlett et al., 2015; Yi and Feiock, 2012; May et al., 2006). Intra-policy conflict refers to incompatibility among the instruments and goals embodied in policy design. Within policy design parlance, intra-policy conflict indicates that policy design is informed by an inappropriate causal logic (Schneider and Ingram, 1993). Each of these types of conflict is discussed in more detail below.

Inter-Policy Conflict

Rarely is an issue deemed worthy of public attention addressed using only a single policy. It is far more common for policymakers to apply suites of related policies that address the same or different dimensions of a given policy issue. In recognition of this, policy scholars have sought to examine the design and/or interacting effects of policies comprising policy suites. In policy scholarship, these suites of policies have been referred to as policy bundles (Kassekert and Feiock, 2009), policy mixes (Gunningham and Sinclair, 1999; Howlett and Rayner, 2013), policy toolkits (Howlett et al., 2015) and policy portfolios (Doremus, 2003; Gunningham et al., 1998), among other ways. Central to scholarship on the idea of policy suites, conceptualized using these various terms, is considering the potentially interacting effects of related policies: more specifically, ascertaining whether the designs of the individual policies within a suite, bundle or mix are reinforcing or conflicting. May et al. (2006, p. 382) use the term "policy coherence" to refer to how well policies with similar objectives fit or go together.

Howlett et al. (2015) situate a focus on policy suites, defined as policy toolkits, within a 'new policy design orientation.' According to Howlett et al., the old policy design orientation took a mostly instrumental or tool-based approach to studying single policies, particularly in relation to implementation issues and processes. In contrast, the new policy design orientation focuses on "complex tool preferences . . . and also devotes more attention to the temporal processes which brought existing policy tool mixes into being" (Howlett et al., 2015, p. 293). In their discussion of the new policy design orientation, they draw attention to the work of Gunningham et al. (1998) and others interested in synergies and conflict among policy mixes, bundles, portfolios, etc.:

> Gunningham et al. (1998) had already led tools-oriented scholars to focus on how instruments within a policy mix or 'portfolio' could complement each other or conversely, lead to conflicts, resulting in guidelines for the formulation of more sophisticated policy designs in which complementarities were maximized and conflicts avoided . . . While this work has continued, concerns regarding how to make the most of policy synergies while curtailing contradictions in the formulation of new policy packages has become a major topic of investigation within the new design orientation.
>
> *(Howlett et al., 2015, p. 297)*

Noting temporality and inter-policy conflict, Howlett et al. highlight another focus of the new policy design orientation—to understand the evolution of individual policies and groupings of policies. A key premise of scholarship with this focus is that policy evolves incrementally, such that the current designs of policies retain many of the elements of previous policy iterations.

Combining individual policies into mixes that may generally orient toward a common general objective does not overcome policy legacies that favor particular tools and goals. The result is that individual policies within policy mixes may have contradicting tools and goals. Doremus (2003, p. 217) argues that in the context of policy mixes, or what she refers to as policy portfolios, it is important to have goal clarity, systematically monitor and evaluate policy effectiveness, remain sensitive to the policy context and revise the portfolio in accordance with new policy-relevant information.

Intra-Policy Conflict

Of the many critical elements of policy design highlighted by scholars is the implied causal logic that undergirds it. This logic reflects assumptions about how different elements of policy design relate to one another and, more specifically, about the potential for policy instruments to support the attainment of policy goals, given assumptions about how policy targets are expected to behave. More basically, this is the logic undergirding the supposition that policy targets engaging in the behavior compelled by the instrument articulated in the relevant policy design will result in the attainment of the policy objectives. Schneider and Ingram (1990, p. 68) define this causal logic in the following way:

> The underlying structural logic contained in empirical examples of policy refers to the pattern in which the elements of policy occur, or the patterns through which policies address problems or seek to achieve goals. Just as it is possible to diagram a sentence linking together the parts of speech, it is possible to diagram the structural logic of a policy by showing the relationships among these elements.

Policy effectiveness is, in large part, predicated on the soundness of the causal logic underlying policy design. When this causal logic is lacking in integrity, the potential for observing the types of descriptive policy conflict (disagreement in expected and actual policy behavior) and normative policy conflict (disagreement in expected and actual policy impacts) noted in the previous section is heightened.

Intra-policy conflict can thus be conceptualized as a policy outcome informed by a misspecification of the link among the causes of a problem and the solutions designed to address it. When considering intra-policy conflict from an inter-temporal perspective—or deterioration of the causal logic informing policy design over time—it can also indicate a failure to incorporate policy feedback or learning.

Conflict Between Policy Design and Principles of Democratic Governance

The final type of policy design related conflict discussed in this chapter refers to disagreement or incompatibility among policy design and broader principles of democratic governance, such as inclusivity, public participation and the freedom to express and debate diverse viewpoints. The discussion of this type of policy design related conflict builds on the previous relating to policy design feedbacks. The previous discussion on this topic focused on stakeholder dynamics relating to policy design. The discussion in this section applies to a broader set of factors and is organized around the two different conceptualizations of policy design: policy design as policy formulation and policy design as policy content.

When policy design is defined in terms of policy formulation, a chief consideration is adequate inclusiveness or representation of policy stakeholders—more specifically, that the expertise,

perspectives and values of various policy stakeholders are meaningfully accounted for in the review and selection of policy alternatives. The failure to include policy stakeholders in these processes indicates a conflict among policy design and principles of democratic governance. Some scholars note the tendency for policy formulation to be exclusive, because evaluating and developing policy alternatives requires high levels of technical and scientific expertise that only a relatively limited number of policy stakeholders possess (Sidney, 2007). Bobrow and Dryzek (1987) suggest there is room for broader stakeholder engagement in policy formulation. According to Bobrow and Dryzek, more inclusive processes allow policy analysts to gain exposure to a diversity of policy arguments, including, as they say, "about the degree to which a technical approach is appropriate" (Bobrow and Dryzek, 1987, p. 21). Insofar as inclusive policy design processes allow stakeholders with different policy perspectives to interact and debate ideas, they can also facilitate the breakdown of divisive or harmful stereotypes attached to different types of policy stakeholders.

When policy design is defined in terms of policy content, the relevant focus is on whether the configurations of elements of policy design undermine principles of democratic governance, which is the manifestation of conflict in this case. While it may be possible to discern this type of conflict by examining a single policy at a single point in time, it is likely more validly diagnosed by observing persistent patterns in policy design over time and then relating these patterns to democracy indicators. Schneider and Ingram (1997) offer an elaborate explanation of this idea. As previously noted, Schneider and Ingram suggest looking for patterns in how and to whom policy benefits and burdens are allocated through policy design and determining whether persistent receipt of policy burdens is linked to low or declining levels of civic participation. Although Schneider and Ingram are clear about defining policy design as policy content, they do implicitly link different conceptualizations of policy design in arguing that policy formulation processes that do not yield policies supportive of democratic principles will be deemed unfair in the long term (Schneider and Ingram, 1997, p. 3). In other words, it is important for both the process of policy design and content of policy to be compatible with broader principles of democratic governance; incompatibility, or conflict, on one aspect of policy design will likely lead to conflict on the other. Schneider and Ingram's approach to policy design is rooted in a critical theoretical perspective that focuses on how policies create, perpetuate and influence levels of equality among policy stakeholders. According to Schneider and Ingram, policies are tools that should be used to "serve justice, undermine power differentials in society, unmask and deconstruct prevailing ideologies and systems of privilege, and eliminate oppression" (Schneider and Ingram, 1997, p. 10). Policies thus, through their design, are mechanisms for overcoming conflicts in democratic governance.

Insight for Practitioners

This section offers insights for practitioners for avoiding or managing the types of policy design related conflict discussed in this chapter. The insights are drawn based on the referenced theoretical and empirical policy design scholarship. Practitioner insights are organized by type of policy conflict.

Policy Design and Stakeholder Conflict

Scholars associate policy design with stakeholder conflict in terms of how stakeholder conflict shapes policy design, how policy design influences stakeholder conflict and how stakeholder dynamics lead to systemic policy feedbacks.

Policy typologies, as well as May's (1991) policy spectrum, offer a useful platform for connecting policy design and stakeholder conflict. Treating policy design (predominantly in terms of policy function or instrument) and politics broadly, these approaches for characterizing policies posit the type of stakeholder conflict that can motivate or ensue from policy design. Building from these approaches, one could consider whether the instruments articulated in policy design elicit a certain type of politics or are likely to elicit a certain type of policy reaction.

In terms of policy feedbacks, it is worthwhile to think through how policies/policy instruments influence the reallocation of politically relevant resources (e.g. access, information, wealth) among both non-governmental policy stakeholders (e.g. private entities, interest groups, the general public) and governmental policy stakeholders (e.g. administrative agencies).

Another topic addressed in the previous discussion regarding the relationship between policy design and stakeholder conflict is how it takes shape in decentralized governance settings. Here conflict is described in terms of disagreement among the ideas, values or policy preferences of diverse groups of stakeholders engaging in policy design. Those overseeing or managing policy design in such contexts have a particularly important role to play. They can minimize the likelihood of stakeholder conflict by enabling meaningful participation by various parties to the collaborative design process, encouraging the exchange of policy-relevant information among them and facilitating negotiation and consensus-building through deliberative decision-making.

Those engaged in policy design can also pursue *ex ante* strategies for ameliorating stakeholder conflict that can arise following the enactment of policies. For example, they can specify mechanisms for resolving conflicts among policy targets within the content of policies, limit who is involved in policy formulation processes and/or limit the scope of policies around relatively non-contentious objectives. The latter two suggestions have non-trivial implications for democratic governance and should be interpreted with sensitivity to policy contexts.

Conflict in Behavioral Assumptions Underlying Policy Design

Conflict in the behavioral assumptions underlying policy design can manifest in a mismatch between how policy targets are expected to act and how they actually do act, or in a mismatch between expected and actual policy impacts.

There are myriad factors that could influence disagreement among expected and actual behavior or policy impacts beyond just faulty assumptions about how policy targets are likely to interpret and respond to the instruments articulated in policy design. Many of them, however, underscore the need to understand the contexts in which policies are being applied. This includes the personal and cultural contexts of policy targets as well as characteristics of the groups, organizations and/or communities in which they will engage in policy-related decision-making.

Inter- and Intra- Policy Design Conflicts

Treating policy design specifically as policy content, inter-policy design conflict refers to disagreement among the designs of policies that are applied in concert to address common issues is a common domain. Intra-policy conflict refers to incompatibility among the instruments and goals embodied in policy design.

To address inter-policy design conflicts, deliberate attempts should be made to map out the policy landscape in which new policies, or iterations of policies, are being applied. Building a policy map can then enable investigations into the likelihood of negative policy interactions. Policy mapping and interactions assessment should be formally incorporated as a part of the

policy analysis process. The policy analysis process should also formally incorporate evaluations of the causal assumptions underlying policies. One way to do this would be to assess like policy solutions to ensure the validity of goals-target-instrument relationships.

Conflict Between Policy Design and Principles of Democratic Governance

Conflict between policy design and principles of democratic governance arise when policy formulation fails to be representative or inclusive of diverse arrays of policy stakeholders or when the content of policies perpetuates divisive or harmful stereotypes of different groups of policy stakeholders.

When policy design is defined as policy formulation, conscious efforts can be made to ensure that deliberation regarding policy options is made inclusive to diverse types of policy stakeholders. Inclusion can be sought through formal mechanisms, for example, by convening diverse arrays of policy stakeholders within formal policy advisory committees, task forces or other publicly initiated forms of sustained dialogue. Inclusiveness can also be encouraged by establishing opportunities for policy stakeholders to engage more informally in dialogues regarding policy alternatives.

When policy design is defined as policy content, deliberate attempts can be made to consider how current policies build from previous policies. Concerted attempts should be made to evaluate elements of policy design that remain static over time. Given that policy contexts are fundamentally dynamic, stasis in policy design may indicate a failure to effectively incorporate updated technical and/or scientific information regarding the nature or context of a policy issue or policy feedback. Further, unconscious perpetuation of policy design or elements of policy design can mean that social stereotypes underlying policy design choices are going unevaluated or unchallenged.

Conclusion

This chapter illuminates the types of conflict that emerge in relation to policy design based on common characteristics of political processes—namely, that political processes engage diverse sets of policy stakeholders that hold disparate beliefs about how public issues should be managed, that political processes sometimes prioritize the articulation of political preferences in policy design over the articulation of sound causal logics and assumptions about the behavior of policy targets, that the policies that emerge from political processes will situate within a broader policy landscape that may or may not be hospitable to them, that political processes are dynamic and that political competition can sometimes undermine broader governance goals.

It is worth noting some caveats to the discussion presented in this chapter. First, the types of conflict highlighted in this chapter are most relevant to relatively open governance systems—for example, advanced democracies that grant political access to non-governmental policy stakeholders. Second, it is important to recognize that conflict in relation to policy design, the latter of which is motivated at least in part by politics, is not always bad. This is again perhaps particularly true within the context of relatively open governance systems. Some degree of conflict, for example, is inevitable in pluralistic governance environments. Conflict may even be considered desirable, insofar as it signals that governing entities or processes accommodate the expression of diverse perspectives on policy issues. Negative conflict in the context of the policy process is that which undermines effective governance—undermining, for example, the normative foundations upon which governance rests.

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PART 4

Reconsidering Foundational and New Policy Tools

15
NUDGES AND NODALITY TOOLS
New Developments in Old Instruments

Colin R. Kuehnhanss

Introduction

The design of public policy and the choice of policy tools to achieve governments' goals have traditionally been based on a model of human behavior that sees the individual as rational and self-interested. With the advancement of what are often broadly termed behavioral insights—based on observations of actual human behavior deviating from the rational ideal, mostly from research in (cognitive) psychology and (behavioral) economics, but also other social sciences—this basis is increasingly being called into question. As alternative behavioral approaches are being advocated, policy designers need to take their value and challenges into account (see Kuehnhanss, forthcoming, for a review).

Currently among the most prominent of these approaches is 'nudging', as proposed by Thaler and Sunstein (2008). Nudging exploits the cognitive biases in people's decision-making to steer them towards 'better' choices. Some nudges try to correct individuals' decisions by debiasing the decision-making process or by counteracting the bias, whereas others actively seek to make use of the existence of predictable biases to steer individuals towards (socially) desirable choices (see e.g. Lepenies and Małecka, 2015). Proponents of nudging see it as a promising way to achieve policy goals more effectively, at lower costs or by less coercive means than traditional policy instruments (e.g. Benartzi et al., 2017; Galle, 2014; Guala and Mittone, 2015; Madrian, 2014; Thaler and Sunstein, 2008). While a broad array of criticisms of nudging and its normative basis in libertarian paternalism have been voiced, covering ethical, normative, technical and political concerns (e.g. Glaeser, 2006; Hausman and Welch, 2010; Kuehnhanss, forthcoming; Mols et al., 2015; Mitchell, 2005; Rebonato, 2012; Sugden, 2008, 2009, 2016), the political interest in nudging and the development of government capacity to utilize it are increasing.

As nudging tries to change behavior without significantly altering incentive structures or imposing costs on the decision-maker, many suggested interventions focus on the type, quantity and context of the information governments provide to citizens. They thereby often either compete with or complement other (recent) information-based tools. This chapter discusses nudges in the context of existing taxonomies of such tools. More specifically, it considers the coherence between nudging and other nodality tools, building on governments' central position in the social network. The next section first discusses the concept of nodality and how different types of instruments may build upon it. Subsequently, two recent but commonly utilized types of

nodality-based instruments with varied levels of reliance on the traditional assumption of rationality are presented: government communication and social marketing. Nudging is then discussed in detail and contrasted with the conceptual basis of nodality and the two other example instruments to highlight where they overlap and where nudging provides a distinctly novel tool to designers. The final section concludes by stressing that practitioners need to be clear about what defines nudges and their normative provenance in libertarian paternalism. While certain nudges constitute their own and novel tools, making substantial use of governments' nodality, they are also often built on an understanding of socio-economic phenomena as being the sum of the individual-level behaviors they target. Designers wanting to target wicked problems should probably see nudges as supplementary tools and not as the magic wand they are sometimes advertised as.

Policy Design, Tools and Nodality

In making public policy, governments have a considerable array of tools and instruments—and freedom in combining them into policy mixes—at their disposal (Howlett, 2005; Wu and Ramesh, 2014). Finding efficient and effective combinations is, however, not necessarily straightforward. The policy design literature provides the meta-analytical basis on which to assess the tools' suitability. As Howlett (2014, p. 193) points out:

> In a design orientation, policy designs can be thought of as 'ideal types', that is, as ideal configurations of sets of policy elements which can reasonably be expected, if adapted to meet the parameters of a specific contextual setting, to deliver a specific outcome.

The common denominator of available policy tools is the intent to influence collective action to reach specific government goals (Bobrow and Dryzek, 1987; Salamon, 2002; Schneider and Ingram, 1990) through "concrete and specified operational forms of intervention by public authorities" (Bemelmans-Videc et al., 1998, p. 4). To effectively create a policy design, the designer needs to understand and predict the functioning of the available instruments in achieving the desired goal (Bali et al., forthcoming). Importantly, most designs are not created from scratch, but often need to take into account existing and often gradually evolved (e.g., through layering or patching) policy mixes (Howlett, 2014; Thelen, 2004; Van der Heijden, 2011).

One of the most-cited approaches to ordering and analyzing the basic characteristics of the different items in this 'tool-shed' is the NATO classification by Hood (1983) and Hood and Margetts (2007). Hood distinguishes between the core resources governments have at their disposal simply based on being governments: nodality, authority, treasure and organization. Although it must be stressed that most government tools will inevitably draw on multiple resources, either at the same time or at different stages in the policy cycle, the NATO classification focuses on the most important aspect of a tool to assign it to a resource category. The next three chapters of this book offer in-depth discussions of authority, treasure and organization, respectively. This chapter focuses on nodality. As Hood and Margetts (2007, p. 6, emphases in original) define it:

> *Nodality* gives government the ability to traffic in information on the basis of "figure-headedness" or of having the "whole picture" (Simon et al., 1950, p. 191). Nodality equips government with a strategic position from which to dispense information, and likewise enables government to draw in information for no other reason than that it is

> a centre or clearing house. The limiting factor is *credibility*, and the 'coin'—how government spends this resource—is messages sent and received.

Knowledge and capacity tools, for instance, typically draw heavily on nodality and "provide information, training, education and resources to enable individuals, groups or agencies to make decisions or carry out activities" (Schneider and Ingram, 1990, p. 517). Importantly, the underlying assumption in using such instruments has traditionally been the rationality of their targets.

Hood (1983) and Hood and Margetts (2007) further distinguish between 'detectors' and 'effectors'. In the context of nodality, detectors comprise incoming streams of information based on the situation of government at the center of the social network, without the need to pay (significant amounts) for its provision. However, government will still face the opportunity costs for the resources used for receiving information and for sorting signal from noise. Moving from the cheapest and most passive to the most active, possible channels include unsolicited contacts from citizens or businesses driven by their own interests, information as a by-product (for instance in the supply of public or administrative services), actively encouraged citizen-interaction such as feedback mechanisms or ombudsmen, scrutiny of the free press and direct inquiry such as public opinion or issue-targeted surveys (Hood and Margetts, 2007).[1] Effectors, in contrast, are tools used by governments to manage outgoing information. As Hood and Margetts (2007) stress, this may include the suppression of information or the spreading of disinformation. Focusing on the spreading of information to citizens, government may want to target individuals, groups or the public at large with its messages. For all three levels, messages can be tailored to require an initial trigger to be received, be public but require knowledge of how to receive them, be broadly available or be actively aimed and communicated at the target group or individual.

The aim of the collection and dissemination of information by government ultimately remains to know about and be able to influence the behavior of its agents and citizens towards its policy goals. To this end, Howlett (2000, 2009) identifies two broad categories of instruments as being at its disposal. First, it can use substantive instruments to try to alter the behavior of citizens, either by directly addressing them or by indirectly influencing their environment (e.g. the availability or characteristics of goods and services). The targets of substantive instruments are thus the behaviors of "those involved in the production, consumption and distribution of different kinds of goods and services in society" (Howlett, 2009, p. 25).

Second, it can try to shape its own institutions' and actors' interactions with the social network in a way that facilitates the achievement of its goals through procedural instruments. Governmental policy actors and their relationships to each other and to non-governmental actors can form complex interaction patterns, including institutional and informal interactions. Within policy networks, such interactions are usually "structured around shared beliefs and interest in public policy making and implementation" (Howlett, 2009, p. 26). By influencing these beliefs and interests through procedural tools, governments can attempt to alter policymakers' preferences and therefore policy and, ultimately, the environment in which citizens make their decisions.

Taking the above understanding of nodality as a government resource and the separation of instruments into categories of substantive and procedural as a basis, this chapter explores some of the dominant and ongoing trends in the collection and use of information by governments with the aim to influence citizens' behavior.

Recent Additions to the Nodality Tool-Shed

Some recent additions to nodality-based tools, at least in the increased frequency of use, are government communication and social marketing.

Government Communication

The term government communication has been used to describe a broad variety of government activities with different levels of focus, ranging from a global inclusion of political information to specific activities like advertising (see e.g. Bang, 2003; Young, 2007). Howlett (2009, p. 24), for instance, provides the following definition for it as a policy tool:

> 'government communication' can be thought of as a generic name for a wide variety of a specific type or category of governing instruments, ones which typically draw upon what Christopher Hood (1986 [1983]) called 'nodality' or the use of government informational resources to influence and direct policy actions through the provision or withholding of 'information' or 'knowledge' from societal actors.

In itself, this definition leaves ambiguous which specific activities would qualify, and on what grounds, as a government communication tool and which would not. In distinguishing between substantive and procedural tools, it becomes somewhat clearer. Howlett (2009) identifies two types of instruments within each category. The assumption is that these tools are not only aimed at different audiences—producers or political actors on the one side, consumers or citizens on the other side—but also at different stages in the policy and production cycles. For substantive instruments, the types are product information tools targeting producers and consumer information tools aimed at citizens. In the procedural instruments category, they are general disclosure tools at the front end and data collection and release tools at the back end.

Leaving aside the decision-making stage in the policy cycle as less likely to be influenced by communication tools, procedural tools are aimed at agenda setting and policy formulation. They comprise examples such as audits, freedom of information acts, whistleblower protection legislation and official secrets acts or censorship to influence the way policy actors manage the flow of information between themselves and vis-à-vis the public. Collection and release tools, in contrast, focus on the policy implementation and evaluation stages. Howlett (2009), based on the work by Stanbury and Fulton (1984), lists public hearings, planned leaks, media relations and communication strategies, but also items such as inquiries, surveys and polling in this category. In terms of policy evaluation, benchmarking and performance indicators also belong here (Julnes and Holzer, 2001; Kouzmin et al., 1999; Van Thiel and Leeuw, 2002).

To distinguish the substantive communication tools, it is more intuitive to make use of the production process for goods and services that these tools seek to influence, rather than the policy cycle. The split made by Howlett (2009) differentiates between tools aimed at producers and tools directly targeting citizens (or rather consumers in the production cycle). The producer-directed tools comprise notifications and approaches like 'moral suasion'. The former require producers to notify consumers of certain attributes of their products and are described by Adler and Pittle (1984, as cited in Howlett (2009, p. 28)) to:

> convey factual information to the intelligent target. Implicit in the notification approach is the belief that the target, once apprised of the facts, will make the appropriate decision.

Examples of such notification tools include food labels (e.g. Baltas, 2001; Capacci et al., 2012; Padberg, 1992), warnings on tobacco products (e.g. Fong et al., 2009; Levy et al., 2004) or mileage and pollution information for cars. With the classic understanding of citizens' decision-making as rational, such information can be seen as overcoming information asymmetries. The required measures for the provision of information are grounded in regulation and therefore imply

mandatory disclosure of the intervention to the public (Baksi and Bose, 2007; Jahn et al., 2005). Moral suasion may similarly be seen as providing information to the rational decision-maker, if only as conveying the wishes of government as basis for voluntary action by producers. However, such appeals may also carry the threat of coercion if no action is taken (see Howlett, 2009). Both the expected way of influencing behavior and the publicity of the intervention are important aspects of these instruments.

Instead of going through producers, governments can also directly address citizens. This may happen in broad appeals to different social actors to adopt certain behaviors or act according to specific principles or norms. In particular, the role of social norms has received much attention in the behavioral insights literature and will be further discussed below. For the classic tools, the expectation in invoking principles and norms is for governments to exert leadership in defining what exactly it is that ought to be followed. Governments may also try to directly 'persuade' citizens to modify their behavior by sending messages through, for instance, mass media channels. The information content of such messages can differ wildly, ranging from highly emotional appeals (e.g. anti-drunk driving messages) to targeted information campaigns. As Howlett (2009) observes, many national governments spend heavily on mass media communications and advertising, often being the largest purchaser of advertisement time and space. However, the purchasing of advertising slots does not in itself imply an adoption of commercial marketing techniques but can also just be used for appeals and information campaigns.

Social Marketing

Contrary to political communication, social marketing necessarily makes use of the commercial marketing tool-kit. Its inclusion in this chapter as a policy tool may seem at odds with its origins and with an understanding by social marketeers that governments are only one of many potential stakeholders—next to public services, non-profit organizations and associations, interest groups and also for-profit organizations (see Andreasen, 2002; Dibb, 2014). However, in many respects, social marketing offers a methodology for policymakers to enact behavior change among citizens and is indeed being used by governments for various purposes (Altman and Petkus, 1994; Mols et al., 2015). Much like political communication, it draws on other government resources than nodality, notably organization and treasure. Nonetheless, governments' position at the center of social networks provides an ideal basis for commissioning social marketing activities.

Originating from the work of Kotler and Levy (1969), seeking to extend commercial marketing methods to social issues, social marketing has become a field of active academic and practical interest over the past 40 years (Andreasen, 2002; Dibb, 2014). Examples of its use include discouraging alcohol consumption in public places, encouraging breastfeeding by new mothers and healthy eating programs in the health sector, household budget and debt management campaigns and recycling and car sharing campaigns in the environmental sector. Social marketing may, however, also work by targeting legislators (Donovan, 2011), as for example in campaigning for smoking bans or food labeling regulation (Dibb, 2014). While multiple definitions exist, the two core components are typically a reliance on commercial marketing methods and the aim to work towards a social good (Andreasen, 1994, 2002; Crawshaw, 2013; French and Russell-Bennett, 2015; Lefebvre, 2012). An exemplary definition is the one adopted by the European (ESMA), Australian (AASM) and international (iSMA) social marketing associations (Saunders et al., 2015, p. 162):

> Social Marketing seeks to develop and integrate marketing concepts with other approaches to *influence behaviours* that benefit individuals and communities for the

> greater social good. Social Marketing practice is guided by ethical principles. It seeks to integrate research, best practice, theory, audience and partnership insight, to inform the delivery of competition sensitive and segmented social change programmes that are effective, efficient, equitable and sustainable.
>
> *(emphasis added)*

In doing so, the target is the behavior of the individual, rather than group or community behaviors (Andreasen, 1994, 2002). Consequently, the application of social marketing requires not only the application of some tool of behavior change, but also an understanding of what determines individual behavior in the first place and how it relates to individual welfare and the social good. To clarify what constitutes a social marketing intervention, Figure 15.1 presents current benchmarks by the British National Social Marketing Centre used in the field. Three aspects of these benchmarks are particularly noteworthy: i) the empirical approach to testing and evaluating interventions against measurable objectives; ii) the reliance on behavioral theories and social context in developing interventions; and iii) the voluntary engagement of targets with the intervention in an exchange setting supported by the marketing mix.

In terms of the procedural versus substantive policy tool taxonomy, aspects i) and ii) can be regarded as the responsibility of policymakers and their agents to coordinate the policy goal and their understanding of expected target behavior. The need for having measurable objectives and testing the effect of interventions makes procedural tools such as education of staff, focus groups and surveys (Howlett, 2005) more important. For the substantive side, the focus on individual behavior with a reliance on behavioral theories offers (at least to a certain extent) a break from the traditional reliance on an assumption of rationality of policy targets. While the marketing mix (promotion, product, price, place) draws on classic incentives as well, marketing has for a long time recognized the value of non-monetary and psychological factors in promoting brands.

1. **Behavior change:** Intervention seeks to change behavior and has specific measurable behavioral objectives.
2. **Audience research/insight:** Formative research is conducted to identify target consumer characteristics and needs. Intervention elements are pretested with the target group.
3. **Segmentation:** Different segmentation variables are applied so that the strategy is tailored to the target segment.
4. **Exchange:** Consideration is given to what will motivate people to engage voluntarily with the intervention and what benefit (tangible or intangible) will be offered in return.
5. **Marketing mix:** Intervention consists of promotion (communications) plus at least one other marketing 'P' ('product,' 'price,' 'place'). Other Ps might include 'policy change' or 'people'.
6. **Competition:** Intervention considers the appeal of competing behaviors (including current behavior). The developed intervention strategies seek to minimize the competition.
7. **Theory:** Using behavioral theories to understand human behavior and to inform the programs which are developed.
8. **Customer orientation:** Attaching importance to understanding the customer, their attitudes and beliefs, knowledge and the social context in which they are placed.

Figure 15.1 National Social Marketing Centre Benchmarks for Social Marketing. National Social Marketing Council (2014); Bird (2010).

Source: Dibb (2014), p. 1166.

Social marketeers can equally rely on such approaches and integrate new trends in behavior change rather quickly, as, for example, shown by the uptake of using existing social norms to 'market' certain behaviors (Berkowitz, 2004; Burchell et al., 2013; Haines, 1996). However, some authors argue that social marketing's focus on changing individuals' behavior, sparked by the works of Andreasen (1994, 2002), has led to an over-reliance on behavior change management and a dynamic of behavior change for the sake of change, rather than for the social good (e.g., Lefebvre, 2012; Saunders et al., 2015; Spotswood et al., 2012). In this context, the third aspect of the voluntary nature of engagement of the target with the intervention is particularly relevant. Already the benchmark point on competition hints at an intent of reducing the options available to targets, although it remains silent on the nature of such restrictions. Whether the use of commercial marketing tools can ever lead to only voluntary behavior change is another disputed question—as is whether this should be the intent of social marketing. As Donovan (2011, p. 11) puts it: "In short, it is a marketer's dream for their product to be the only brand available; delete 'voluntary' from the definition of marketing and hence of social marketing." Even if voluntary engagement is maintained as an ideal, the increasing behavioral insights literature precisely argues that behavior change strategies are likely to create non-intended psychological responses outside the control of individuals (Saunders et al., 2015).

For policy designers, social marketing may provide a useful tool in so far as it is clear about the intention to change behavior according to a pre-defined (and measurable) goal. Its ambition to do so in an 'effective, efficient, equitable and sustainable' manner would make it even more appreciable. It is, however, also clear in its ambition to first and foremost rely on commercial marketing techniques, but not always as unequivocally clear on what determines the social good to be reached. It leaves open the question of who defines the social good, on what grounds and how to deal with diverging views of whether a certain outcome is indeed a social good. In search for an answer to such questions, Spotswood et al. (2012), for instance, suggest the UN Declaration of Human Rights as a value basis for ethical social marketing. If used as a policy tool, government's legitimacy would need to provide this ethical basis. In any decision on behaviors that create externalities on others in the society, governments usually need to evaluate not only economic but also normative criteria. Social marketing has yet to come to a conclusion on the relationship between individual freedoms and the social good (whatever it may be). As marketing does not necessarily enjoy a spotless reputation among many people, such tensions could easily lead to accusations of manipulation by government.

Nudging

The concept of libertarian paternalism and the related form of intervention termed 'nudging' that were wildly popularized by Thaler and Sunstein (2008) in their best-seller, *Nudge: Improving Decisions About Health, Wealth and Happiness*, promise to resolve this discrepancy between individual freedom and (social) welfare. Unfortunately, much confusion has ensued about the definition of nudges and the normative basis Thaler and Sunstein (2008) use to justify their usage. It is thus necessary to first take a step back and clarify what the remainder of this chapter will understand by the term.

Policy studies—along with the economics and political science mainstreams—has traditionally relied on an understanding of human behavior as rational and self-interest maximizing. Models building on this understanding, like Expected Utility Theory (Von Neumann and Morgenstern, 1947), take people's goals and their environment as (largely) given and rely on a set of axiomatized rules of choice to fill the void between them and the relevant decisions (Jones, 1999). Such substantive rationality approaches have the advantage of providing a constrained set

of defined rules to describe and predict human behavior. However, the descriptive accuracy of such models has been questioned, as discrepancies between predicted and empirically observed behavior became apparent (Simon, 1955, 1957). Over the last four decades, much research has been conducted on when and how people's decisions deviate from the rational ideal. Important initial findings provided by the heuristics and biases paradigm rooted in cognitive psychology (Tversky and Kahneman, 1974; Kahneman and Tversky, 2000) were integrated into behavioral economics and increasingly also parts of political science. One of the key contributions of this stream of research is the realization that people rely on mental short-cuts in their decision-making and that, while in themselves useful and powerful, such heuristics may be prone to bias. Similarly, people suffer from constraints in their ability to process information and have limited willpower. Importantly, decisions may in practice also depend on aspects of the environment that should have no influence under rational choice. By now, a large array of predictable cognitive biases in human decision-making has been well-documented (Camerer et al., 2004; Kahneman and Tversky, 2000). Recently, the term behavioral insights has been gaining traction to describe the combination of findings from diverse fields such as (behavioral) economics, (cognitive) psychology, neuroscience and others to provide empirically based descriptions of human behavior. A detailed discussion of the differences in the evolution and meaning of the terms behavioral economics and behavioral insights is beyond the scope of this chapter (but see Kuehnhanss (forthcoming) for a review). I shall use the term behavioral insights as a shorthand for approaches seeking to provide descriptively more accurate accounts of human behavior than classic rational choice theories.

With behavioral insights gaining importance in economic and political analysis, they simultaneously pose an opportunity and a challenge for policymakers. Thaler and Sunstein (2003, 2008) propose to use behavioral insights to improve people's decision-outcomes. As policymaking is inevitably dependent on normative considerations of human autonomy and the social good (i.e. social welfare), it calls for a balance between individual freedoms and state paternalism. In the context of this debate, Thaler and Sunstein (2003, 2008) suggest libertarian paternalism as a 'third way'. They contend that the existence of, as they see them, predictable 'errors' (relative to rational choice) in human decision-making justifies "self-conscious efforts, by institutions in the private sector and also by government, to steer people's choices in directions that will improve their lives" (Thaler and Sunstein, 2008, p. 5), as long as they do not constrain freedom of choice and "make choosers better off, as judged by themselves" (Thaler and Sunstein, 2008, p. 5).[2]

Libertarian paternalism has been widely criticized on ethical, normative, technical and political grounds, among others (e.g. Amir and Lobel, 2008; Baldwin, 2014; Gigerenzer, 2015; Glaeser, 2006; Hausman and Welch, 2010; Kuehnhanss, forthcoming; Mitchell, 2005; Rebonato, 2012; Sugden, 2008, 2009, 2016), but still serves as the basis from which the use of nudges is derived. Specifically, Thaler and Sunstein (2003, 2008) argue that the environment in which people make decisions is never neutral. No matter the decision at hand, the behavioral influences it enacts on the decision-maker constitute a choice architecture that may always impact the outcome. Whoever is then in the position to alter the environment becomes a choice architect. In the case of public policy, it is the policymaker (politicians, civil servants, experts) who should take the choice architecture into account to help people reach 'better' decisions. Unfortunately, this approach (and a problematic definition of 'better off' in terms of individual and social outcomes) leaves many questions of legitimacy, responsibility and transparency unanswered. This debate is important (see, for instance, Kuehnhanss, forthcoming; Rebonato, 2012) but also goes beyond the scope of this chapter. In what follows, I will discuss nudging as far as possible in isolation from the normative debate. Note, however, that despite the efforts of some authors to clarify the concept of nudging independently of libertarian paternalism (Hansen, 2016; Hausman and Welch, 2010), the concepts remain intertwined in their understanding that cognitive biases in individual choice

invite action by a social planner. They also often build on an understanding of socio-economic phenomena being the sum of the individual-level behaviors they seek to target.

What Is Nudging?

When assessing the potential relevance of nudging to policy designers, different definitions may lead to diverging conclusions. In their book, Thaler and Sunstein (2008, p. 6) introduce the concept like this:

> A nudge . . . is any aspect of the choice architecture that alters people's behaviour in a predictable way without forbidding any options or significantly changing their economic incentives. To count as a mere nudge, the intervention must be easy and cheap to avoid.

Thus they provide essentially two negative conditions: Anything that does not limit choice (either by mandate or incentive) and is not too difficult to avoid is a nudge. Thaler and Sunstein (2008) proceed to present a wide range of examples of what may be seen as a nudge: default rules such as automatically becoming an organ donor when getting a driver license unless actively opting out or becoming enrolled in a default company savings plan; social norm messages like comparisons of home-owners' energy consumption with their neighbors reinforced by smiley faces on the bill or reminding people of a social group they may identify with to elicit a sense of responsibility for their environment (e.g. the 'Don't Mess with Texas' campaign); provision of information in accessible forms such as health warnings on cigarettes, calorie and content labels on food or compulsory mileage and fuel cost information for cars. More extravagant examples also include the famous fly-in-the-urinal at Amsterdam airport, which is meant to increase levels of focus, and an alarm clock that 'runs away' and hides when the snooze button is pressed to help with issues of limited willpower.

Obviously, this is a rather bewildering array of interventions posing a problem to policy designers seeking effective 'ideal types' of policy elements that can reasonably be expected to deliver specific outcomes (see Howlett, 2014, p. 193). Some authors have attempted to come to more concise definitions grounded in the same behavioral principles Thaler and Sunstein (2008) rely on. For instance, Hausman and Welch (2010) observe that the definition by Thaler and Sunstein (2008) would also classify a 10,000 volt electric shock as a nudge as long as the nudgee (or in this case, rather, the victim) can easily enough walk away from it. They also argue that Thaler and Sunstein (2008) mistakenly count the provision of information and rational persuasion (e.g. warning labels and educational campaigns) as paternalistic in the sense of being warranted by behavioral flaws. However, nothing in the provision of information as such inherently distinguishes between rational decision-makers and those subject to cognitive biases. Hausman and Welch (2010, p. 126) thus also introduce non-economic incentives and a positive requirement to build on behavioral deviations from rational choice into their definition of nudging:

> Nudges are ways of influencing choice without limiting the choice set or making alternatives appreciably more costly in terms of time, trouble, social sanctions, and so forth. They are called for because of flaws in individual decision-making, and they work by making use of those flaws.

Going several steps further, Hansen (2016) provides a rigorous definition trying to align the concept of nudging with the broader behavioral insights principles. In the interest of brevity, I refer

the interested reader to his paper for the exact derivation of the definition. Highly relevant to the design perspective is the distinction Hansen (2016) and Hansen and Jespersen (2013) make between 'nudge' as a verb and as a noun. As they point out, the term is often used interchangeably as both. In the original definition of Thaler and Sunstein (2008), a nudge is any aspect of the choice architecture that influences behavior, regardless of whether it just happens to be there or has willfully been altered. Hansen and Jespersen (2013) advocate the use of the word 'nudge' as a verb to highlight the intentionality driving nudging interventions and to clarify the agency that the nudger has towards the nudgee. The definition Hansen (2016, p. 174) arrives at is:

> A nudge is a function of (I) any attempt at influencing people's judgement, choice or behaviour in a predictable way, that is (1) made possible because of cognitive boundaries, biases, routines, and habits in individual and social decision-making posing barriers for people to perform rationally in their own self-declared interests, and which (2) works by making use of those boundaries, biases, routines, and habits as integral parts of such attempts.
>
> Thus, a nudge, amongst other things, works independently of:
>
> 1. forbidding or adding any rational relevant choice options;
> 2. changing incentives, whether regarded in terms of time, trouble, social sanctions, economic and so forth; or
> 3. the provision of factual information or rational argumentation.

It is in these points that designers should be aware of the assumptions underlying nudging diverging from those of government communication and social marketing. Government communication presumes the rationality of the recipient of the message, be it firms responding to the signals they receive or citizens acting upon appeals and campaigns. It also not only seeks to address individuals to alter their behavior but may also appeal to larger groups or the nation as a whole. Particularly in relation to social norms, government communications are typically meant to exert leadership in defining the appropriate norm to follow. As the examples above already indicate, social norm nudging typically builds on already prevailing norms to reinforce behavior that is in accordance with them (Glaeser, 2006). Social marketing partially relaxes the rationality assumption, but fully relies on economic and other incentives in 'selling' the wanted behavior change. While it seeks to promote the social good, it lacks a clear conceptual basis for defining what constitutes it and who defines it (Spotswood et al., 2012). Libertarian paternalism provides an empirically grounded motivation for its policy interventions and, based on it, argues for the active role taken by the social planner. Whether the empirical basis actually warrants the broad mandate libertarian paternalism claims is doubtful (see Kuehnhanss, forthcoming), but in seeking welfare improvements based on factors endogenous to individual behavior it is less arbitrary than the suggested use of the UN Declaration of Human Rights to guide social marketing.

Nudging and Nodality

The debate on what constitutes nudging has remained clear on nudging not being restricted to government action. While the basis of libertarian paternalism strongly suggests governments to be suitable social planners, Thaler and Sunstein (2008) stress throughout their definitions and examples that other organizations and firms may also utilize nudges on their own initiative. Of course, nudging remains available to governments as a potential tool. The extent to which it relies on nodality thereby depends on the specific intervention, even under the restrictive definition by Hansen (2016). However, some general observations can be made.

While initially brought forward and directly advocated by social scientists, the nudge approach has sparked active interest by governments. Starting in the UK and the US, by now the use of 'nudge-type policies' has been observed in at least 135 countries, 51 of which have "central state-led policy initiatives that have been influenced by the new behavioural sciences" (Whitehead et al., 2014, p. 9). In the process, the relevant government detectors have shifted from a passive observation of trends in (social) science to an active engagement with the research agenda and the investment in dedicated policy labs and research units. The best-known examples are the British Behavioural Insights Team (also referred to as the 'Nudge Unit') initially set up by David Cameron's coalition government within the Cabinet Office,[3] and the US Social and Behavioral Sciences Team (SBST) supported by Obama's Executive Office.[4] Similar units have been introduced in Australia, Canada, Denmark, France, Germany, Saudi Arabia and Singapore (Lunn, 2014). With the integration of such units into government—along with governments' oversight and funding—varying from fully private to fully governmental across countries (McGann et al., 2017), nudging relevant detectors have arguably shifted from a reliance on nodality to increasingly drawing on treasure and organization.

For effectors, the differentiation between substantive and procedural instruments is again useful. The latter are in this context perfectly exemplified by Obama's (2015) Executive Order 13707 directing all US agencies to apply behavioral insights to the design of their policies. In addition, both in the US and in other countries, governments and public administrations are increasingly hiring behavioral economists and other staff with relevant education and experience. The European Commission, for instance, has offered a summer school for its staff and issued guidelines on how to apply behavioral insights (Van Bavel et al., 2013).

As effectors, nudges are often advertised as being a simple and cheap solution even to wicked problems. The broad definition used by Thaler and Sunstein (2008) may invite such a conclusion. However, it also encompasses most information-based policy instruments. Appeals typically used in government communication or social marketing campaigns covering anything from food labels to breastfeeding among new mothers to energy consumption information would be counted as nudges, in so far as they do not change economic incentives. As in the case of food labeling, the difference between a nodality tool like government communication or social marketing and nudging lies in the assumptions about the rationality of the targeted individual and whether behavioral insights are actively used.

When using the definition by Hansen (2016), the potential universe of nudges narrows. For example, one celebrated nudge has been the use of personalized text messages to remind people to pay fines (Haynes et al., 2012), which is claimed to increase the salience of the debt due. However, while benefiting from the nodality of government in identifying debtors, the use of a reminder addressing the debtor by name does more than exploit a bias: It is a clear show of authority, transmission of factual information (it informs the debtor that the state is actively tracking the fine) and (although not explicit) also a threat of sanction in case of non-compliance.

Examples of nudging interventions that fulfill the explicit criteria of Hansen's (2016) definition and largely rely on nodality in their use by governments include two very prominent types: default rules and framing. A common example of the effect of a default rule is the structure of the forms drivers need to complete when they collect their licenses. In some countries, the form contains a question asking people to opt-in to become an organ donor in case of death. The default thus is not to become a donor. In other countries, the default is to become a donor, and those objecting need to tick a box to opt out. The effect of such small changes can be drastic, as demonstrated by the findings of Johnson and Goldstein (2003). For instance, Germany and Austria are arguably quite similar in terms of norms and culture. But while only 12% of Germans are signed up as organ donors, almost 100% of Austrians are. The most important factor

in explaining this difference seems to be the default rule. In this case, the reliance on nodality is obvious, as the administrative tasks required for the issuance of drivers' licenses need to be carried out in either case. By simply adjusting the phrasing of the information provided to drivers, governments can change their behavior drastically. Yet, it is important to note that not all default rules will satisfy the nudging definition by Hansen (2016). In more complex decision problems, such as automatic enrollment for savings plans, it is not always clear whether defaults work by making use of cognitive boundaries, routines or habits or are (falsely) understood to convey factual information in the form of a recommendation by an authoritative source. Important to effective policy design is also the finding that people are sensitive to the outcome of defaults. They are more likely to continue following defaults if they were previously exposed to good defaults (de Haan and Linde, 2017).

Framing effects describe instances when the way of presenting (otherwise equivalent) information alters choice behavior. In other words, they violate the invariance axiom of rational choice theory (see Kahneman, 2000, for a collection of seminal works). A common domain in which framing effects occur is risky choice. Imagine your doctor tells you either that five years after a particular type of surgery, 90% of patients are alive, or that five years on 10% of patients are dead. How likely would you be to opt for the surgery under each frame? Multiple studies have found people to respond substantially more favorably to surgery in the survival frame than in the death frame (see Moxey et al., 2003 for a review). Similar effects can be observed in other domains such as financial decisions, health (25% fat vs. 75% lean food) or in economic policy decisions (Kuehnhanss et al., 2015). They are thus particularly relevant when governments need to provide information about any issues carrying risks as the formulation may invite preference-reversals dependent on the formulation. With the distinction Hansen and Jespersen (2013) make between nudge as a verb and a noun, framing would count as a nudge if its use is intentional. If information is provided without any intent to evoke a behavioral response, it would, under the definition of Thaler and Sunstein (2008), still be a change to the choice architecture, but it is doubtful whether it should be counted as a behavioral policy intervention.

Conclusion

The use of behavioral insights in policymaking is bound to increase. Nudging in particular has been receiving tremendous attention. As the definition under which nudging was popularized is not particularly concise, the term has come to be applied to almost anything that changes behavior. If nudging is to become a reliable tool for policy design, it is therefore increasingly important to be clear about what should be understood by the term, what empirical and normative bases it builds on and how it fits in with other policy instruments. The aspects encapsulated in Hansen's (2016) definition discussed in this chapter provide a concise and rigorous checklist for practitioners to evaluate whether a planned intervention can indeed be seen as a nudge. With more conceptual clarity, designers will also find it easier to determine whether older tools like government communication and social marketing or the newer nudging approach are better suited to target a specific problem.

For what Hood (1983) calls detectors, the reliance of nudging on nodality seems to be reducing with the increasing establishment of dedicated policy labs, nudge units and in-house capacity building. Arguably, resources like treasure and organization are becoming more important in buying expertise or running in-house trials on potential nudge interventions. For effectors, in contrast, nodality remains highly valuable. It allows governments to identify potential problem areas where nudges can supplement existing instruments, to find the right target groups and methods of sending relevant messages and to observe the outcome in the long term.

As nudging came about along with libertarian paternalism, it is warranted to either separate nudging interventions from their normative heritage, or to be cognizant about the implicit assumptions and ideological implications. If taken as a stand-alone instrument to target (wicked) policy problems, nudging relies on an understanding of individual responsibility for outcomes that are hampered by cognitive biases. By counteracting the biases or having a social planner exploit them for the social good, it sees the behavioral barriers to socio-economic problems removed. As argued by Crawshaw (2013) for behavioral interventions more broadly, such an approach is prone to underestimating the significance of social and relational factors in the occurrence of wicked problems. Similarly, the Science and Technology Select Committee (2011) has criticized the UK government for overly relying on novel behavioral interventions and neglecting other traditional policy instruments. With the important exception of the work by Galle (2014), studies directly comparing the efficiency of nudges and classic instruments seem absent. When defined more narrowly, the universe of potential nudges is reduced, but their distinct use for policy designers becomes clearer. Given that many nudges exploit the way information is presented, they can constitute a supplementary tool to existing instruments. The SBST, for example, specifically targeted existing but underperforming policies to increase their effectiveness through the use of behavioral insights and nudges such as defaults and framing. In most instances, nudging will likely be more useful and influential if used in policy layering or patching, rather than in an attempt to create entirely new policy interventions.

Notes

1. Note that surveys, like censuses or tax returns, would not fall in this category. Because citizens are obliged to respond to them and failure to (correctly) do so is penalized, they squarely fall in the authority category of policy tools.
2. Note that in an earlier paper, Thaler and Sunstein (2003) still propose "'better off' to be measured as objectively as possible" without equating revealed preferences with welfare. See Sugden (2016) for a discussion of the meaning and relevance of the phrase 'as judged by themselves'.
3. Already the previous New Labour government had developed an interest in behavioral insights and nudging. For a discussion of the evolution of nudging in the UK see Jones et al. (2014). The BIT was privatized in 2014 but remains part owned by the Cabinet Office.
4. At the time of writing, the services of the SBST have been suspended under the Trump administration and its future is unclear.

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16
AUTHORITY TOOLS
Pervasive, Persistent and Powerful[1]

Arie Freiberg

Governments achieve their public policy objectives by using a variety of 'tools,' 'policy instruments,' 'methods,' 'measures' and 'interventions.' 'Regulatory tools' can be understood as identifiable methods through which collective action can be structured to address public problems (Salamon, 2002, p. 19) or "means of intervention by which governments attempt to induce individuals and groups to make decisions and take actions compatible with public policies" (Landry and Varone, 2005, pp. 107–8).

There is no accepted taxonomy of regulatory tools. Taxonomies range from the succinct and colorful, such as 'carrots, sticks and sermons' (Bemelmans-Videc et al., 1998) to the more complex, such as information, authority, treasure and organization (Hood, 1983; Howlett, 2010, p. 57). Freiberg classifies policy tools into five main categories—economic,[2] transactional,[3] informational,[4] structural[5] and authorization (Freiberg, 2017). Each of these broad categories contains within it a range of regulatory methods that a policymaker or regulator can create or apply in order to achieve their policy objectives, taking into account the economic, administrative and organizational capacities of government, the political or authorizing environment, the power and influence of other actors in the regulatory space, the history, structure and nature of the behaviors, occupations, professions or activities sought to be regulated and the motivations of the actors sought to be regulated (Howlett, 2010, p. 41).

The policy designer's repertoire is wide, and this chapter attempts to explain why one class of regulatory tools, namely authority tools, has proved to be so attractive to governments for so long and in relation to an extensive range of activities. It examines in detail the various types of authority tools, their objectives, advantages and disadvantages and recent changes in their form consequent upon the growth of digital technologies and the shifting relationship between state and non-state actors.

'Authorization' refers to the process of giving a person or organization permission to do something. Although it is generally true in most jurisdictions that everything that is not forbidden is allowed, there are a great many activities that require some form of authorization by a license or permit. Authorizing by licensing, permitting, certifying, registering or accrediting persons or organizations to undertake activities, use premises or titles or exempt persons from certain obligations, or recognizing the authorizing activities of non-state actors, is one of the principal regulatory activities of government. Regulation through government authorization of activities is one of the oldest and most pervasive forms of government regulation[6] that often

represents the face of government to its citizens,[7] constitutes the core activity of hundreds of government departments, agencies, local councils and other bodies who issue or enforce licenses and permits and registers people, places and activities—and often creates resentment due to the burdens it imposes upon them.

Authorization is ubiquitous. At any one time there are likely to be many millions of licenses or permits in force and many more being issued, renewed, canceled or suspended, many hundreds of license types[8] and a significant proportion of the employed population covered by some form of occupational license or registration.[9] And, in contrast to observations regarding the de-centering or the contracting out of the state, more and more activities, occupations and professions are being licensed or accredited in the name of public safety or professionalization of activities or in response to increased specialization and technological developments (United States, 2015, p. 20).

Types of Authority Tools

There is no taxonomy of authorizing mechanisms, and jurisdictions will differ between themselves and internally in their terminology and in the way they utilize these tools. Licenses, registrations and permits can be distinguished along a number of dimensions: by area of control (for example, persons, premises, places, products, entities, activities, public resources); by time (length of authorization); and by authorizing body (public or private). For convenience, these definitions are suggested:[10]

- **License:** a government license is a "regulatory instrument that gives permission or allows an entity to undertake a particular activity" (PriceWaterhouseCoopers, 2013, p. 4).
- **Permit:** a form of authorization that permits or authorizes an activity, usually on a more limited temporal, geographic or activity basis than a license.
- **Registration:** a form of state-required recording of information in an official register that a person has undertaken, or wishes to undertake, certain kinds of activity.
- **Certificate:** a document that provides some form of proof that a certain event or transaction has occurred, that a person or organization has conformed to or complied with a legal or other requirement, has attained a certain level of achievement or is permitted to practice a profession or occupation. A certificate can provide a form of verification that the information contained in it is true and correct.
- **Accreditation:** a formal expression by a private or public body of an authoritative opinion concerning the acceptability, under objective quality standards fairly applied, of the services rendered by a particular institutional provider or the stated attributes of a product.[11]

Design Considerations

Why are authority tools so persistent, pervasive and powerful, and why do governments turn to them so frequently when considering creating a new program or, as is often the case, as a first response to a regulatory crisis? Authority tools would appear to be an antiquated regulatory technology, little changed over the centuries and ripe for reform, particularly in the light of re-emerging demands for 'de-regulation' in many jurisdictions.

There are many dimensions to authorization as a form of regulation, which partly explains its ubiquity and longevity. First, it recognizes and legitimates state power over many forms of activities and ownership or control over human and economic resources such as land or the natural environment. It acknowledges and reinforces the fact that governments have the ultimate authority to allow or disallow various forms of conduct. The exercise of that power serves as a

reminder of the continuing centrality of the state in the management of economic and social relations despite the growing recognition of other forms of non-state regulatory measures.

Second, authorization is a primary means of addressing information asymmetries.[12] Governments like, and need, to know what their citizens are doing as well as where and when. Authorization tools such as registration and licensing generally require the authorized parties to provide the state with information about themselves, their activities and location and to keep the state, and the public, informed about these matters through regular updates or renewals. Information is an important measurement tool enabling governments to understand the nature and scale of a vast range of activities within their jurisdiction.

Information asymmetries can also be addressed through the authorization of occupations, trades and professions. These are collections of people with specialized forms of skill or knowledge and the state can, through licenses, registrations and permits, control the entry of people into a profession or occupation. By mandating standards required for entry into a profession or occupation and granting, directly or indirectly, the sanction of government through authorizing mechanisms, the government addresses information asymmetries by, in effect, warranting that the holder of the authorization possesses the requisite skills or knowledge that the consumer requires. Requiring minimum standards narrows the information gap, and the process of authorization relieves the consumer of the need to either personally obtain those skills or verify that they exist.

Third, authorization mechanisms are among the most significant means by which an environment of trust can be created and maintained (Righgettini, 2014). Licenses, certificates or permits can be regarded as 'tokens' of trust issued by governments and other bodies, enabling people to go about their daily lives without the need to verify independently the qualifications of the people they deal with, the safety of the items they consume or the instruments that they use. The degree of trust invested in such tokens depends on the credibility of the authorizing body in the eyes of consumers and the end users of the authorized products or services (Righgettini, 2014, p. 10).

Fourth, authorization is an essential element in risk management. As a preventive regulatory tool, it seeks to minimize the risk of harm by attempting to ensure that those who engage in possibly harmful activities are properly trained and skilled (Australian Law Reform Commission, 2002, p. 417). Authorization is a form of standard setting; the higher the standard and the more rigorously it is enforced, the lower the risk of harm. Risk may also be managed by limiting the conduct of licensees; introducing requirements to conform to industry codes, standards or guidelines; and imposing solvency requirements.

Finally, authorization involves the creation or transfer of wealth. Social and economic regulation are closely connected in this context. In the 1960s, licenses were characterized as the 'new property' (Reich, 1964). A license permits a person or organization to compete in a market provided that the person or organization has obtained permission that will be conditional (Baldwin and Cave, 1999, p. 258; Kleiner, 2015, p. 40). Licenses can increase the wealth of their holders by restricting access to, and competition in, markets. The extent of the wealth created or transferred will depend upon the size of the market and the degree of constriction of the market that licenses cause.

Licenses and registrations also serve to transfer resources from the regulatee to the state through fees and charges. They are one of the few regulatory tools that, in theory, can be self-funding. For that reason, they are highly attractive to governments (United States, 2015, p. 22). Where licenses are used to allocate scarce resources, such as radio spectrum, they can result in significant financial gain to governments.

There are few other regulatory tools that address so many requirements of effective regulation. As the following discussion of the various forms of authorization indicates, each of the forms is complex, multi-dimensional and meets the needs of both regulators and regulatees.

Licensing

Licensing is one of the basic tools of government, a token of authority long used to provide access to markets on specified terms and conditions. Its essential feature is the creation of a specific relationship between the regulator and the license holder so that the holder's conduct is restrained not only by rules of general application but also by the conditions of the license itself. The conditions will often relate to a requirement of competence to undertake the activity (Friedman, 1962, p. 145). Licensing is related to other forms of market access mechanisms such as registration, certification and accreditation, which differ in terms of their restrictiveness, source of authorization, supervision and consequences of breaches.

Objectives of Licensing

Licensing as a form of regulation has long been attractive to governments because it fulfills multiple objectives (Allen Consulting Group, 2007, p. 19ff).

- **Promoting consumer protection:** the granting of a license on condition of meeting specified levels of competency in relation to the activity undertaken or service provided is intended to protect consumers by providing some assurance of minimum standards of competency in the delivery of goods and services (Smith and Ward, 2005, p. 102; Cope, 2004, pp. 93–4). This can be achieved through requiring minimum qualifications, training or experience, competence testing, supervision requirements, service standards or ongoing professional development or training (IPART, 2013, p. 49; United States, 2015, p. 11).
- **Protecting the community generally:** where licenses or permits are used to restrict access to scarce resources or limit the production of externalities, they serve to protect communal resources from over-use or exploitation.
- **Addressing information asymmetries:** licensing is a means of addressing information asymmetry where, for example, a consumer does not have an adequate understanding of the goods or services provided, where it may be difficult to obtain such information or where a consumer uses the services or obtains the goods infrequently (Smith and Ward, 2005, p. 102; Cope, 2004, p. 93; United States, 2015, p. 11). Licensing therefore reduces transaction costs to consumers. Licensing may address information asymmetries by requiring information disclosure (IPART, 2013, p. 49) or restricting the use of titles such as 'doctor' that might create a false sense of security.
- **Enhancing probity:** the granting of a license may be subject to preconditions relating to the status or background of the person applying for it, on the premise that such people are more likely to cause harm than those who do not have such characteristics. A license may be denied to a person who is under a certain age or has a criminal background; who has been insolvent; who has previously had a license suspended, canceled or disqualified; whose character is considered unsatisfactory or otherwise not a 'fit and proper person'; or who is a proxy for other ineligible people (Smith and Ward, 2005, p. 102; IPART, 2013, p. 49). Licensing schemes can be useful mechanisms to reduce the risk of infiltration of organized crime into lawful occupations or industries subject to such schemes, either by restrictions on entry into the regulatory regime or post-entry monitoring and supervision (Victorian Law Reform Commission, 2016).
- **Promoting market stability:** in unregulated markets, firms may have excessive market power and may exploit and abuse consumers. Such conduct can undermine the stability and sustainability of markets. Licensing can be used to establish rules about market conduct that

can deal with the probity aspects of access to markets and set benchmarks for performance, in order to create a framework of trust (Smith and Ward, 2005, p. 102) and improve market stability.

- **Minimizing or preventing harm:** by controlling the supply of certainly or potentially dangerous goods or services (such as liquor, gambling or prostitution), rather than prohibiting them outright, licensing is intended to minimize the harm that these products or services are known to cause or may cause (Smith and Ward, 2005, p. 103).[13]
- **Promoting order and facilitating enforcement:** licensing activities permits regulators to control the amount, duration and place at which activities may occur that may disturb the peace or otherwise cause harm to others. The requirements that licensees provide personal contact information; notify regulators as to changes of location, control or management or operations; and keep records of a certain type and for a specified period allow regulators to locate them for the purposes of auditing, inspection and enforcement that may be authorized by legislation (Friedman, 1962, p. 145; Valverde, 2003, p. 234; Rimmer, 2005, p. 121; IPART, 2013, p. 49). A license is a preferred technique when it is considered necessary to "ensure close supervision of an entity's activities or regular inspection of its equipment or practices or control over the people or entities" (Australian Law Reform Commission, 2002, p. 121).
- **Providing redress:** A licensing regime may require the establishment of a complaints handling or dispute resolution process; mechanisms for the imposition of administrative or criminal sanctions; remedies and requirements for taking out insurance policies; or the creation of trust or compensation funds, all of which may provide a consumer with some avenue of complaint or form of redress (IPART, 2013, p. 49).
- **Recovering costs:** licensing schemes are expensive to operate and a financial burden on the state. Although revenue collection is not a primary purpose of licensing, the ability to collect revenue to fund the regulatory scheme distinguishes licensing from some other forms of regulation that do not have the capacity to generate revenue (IPART, 2013, p. 49).

Forms of Licenses

Licenses can take many forms. Professional or occupational licenses are given to individuals who have the requisite qualifications and meet the standards specified in the relevant authorizing law. They are not transferable. Business licenses are provided to persons running a business and confer a right to conduct that business or undertake certain activities at specified places. They create property rights and may be transferable. Activity licenses are the most common form of license. They permit the holder to undertake an activity such as driving a motor vehicle, hunting, fishing, constructing a building, emitting waste and owning a companion animal.

Risk-Based Licenses

The development of risk-based licensing is a relatively new innovation in the use of authorization tools. Traditionally, licenses have been granted if the applicant meets the specified criteria or standards. The fees and charges applied are identical for all licensees who are granted a certain category of license. In an attempt to more actively manage risk and create a more responsive and dynamic regulatory regime, risk-based licenses have been introduced in areas such as environment protection and liquor control.

A risk-based regime requires that the regulator assess the risks posed by an activity or premises, the licensee's prior performance and any risk-management systems presently in place or proposed. Different levels of license may then be allocated according to the level of risk.

The consequences of being allocated different levels of risk may include different levels of regulatory or compliance oversight, differential fees and publication of their classification on a public register (IPART, 2013). The aim of risk-based licensing schemes is to encourage regulatees to reduce their risk profile, thereby reducing both the financial and regulatory costs of doing business.

Negative Licensing

Negative licensing is a form of regulation where no license or permit is required to enter a market, but any serious breaches of standards may result in exclusive sanctions (Rimmer, 2005, p. 13). It is designed to ensure that individuals or organizations who have demonstrated that they are incompetent or irresponsible are precluded from operating in an industry. Under a negative licensing scheme, a person who is ineligible is required to apply to a regulatory authority to practice.

Negative licensing is not widely used (Braithwaite, 2009; Victorian Law Reform Commission, 2016, p. 4). Administratively, negative licensing is less expensive than entry or positive licensing because its focus is on fewer people or organizations. It does not require the establishment of, nor does it bear the costs associated with, a full licensing scheme or registration scheme such as a board, the cost of assessments of eligibility or competence or the granting and renewal of registrations, licenses or certificates (Council of Australian Governments, 2008). On the other hand, the absence of a license means that there is no document that can be used for mutual recognition in another jurisdiction that may require such a document (Council of Australian Governments, 2008). The absence of a licensing scheme also means that there are no licensing fees, so that funding for the general regulatory scheme needs to be drawn from other sources (Consumer Affairs Victoria, 2006, p. 19).

Negative licensing schemes also have other disadvantages. These schemes are reactive, rather than proactive, and take effect only after some harm has occurred, which results in the exclusion of the person from the activity. They still require some form of monitoring and some body to take action to detect or respond to the harmful behavior. In the absence of any compulsion, there is no guarantee that an employer, for example, will obtain the necessary information relating to a person's non-eligible status and pass it on to the relevant regulator. Where the activity has a compensation scheme attached to it, there may be no mechanism to link the person or organization to the scheme.

Elements of a Licensing Scheme

The enduring popularity of licensing as a regulatory tool can be attributed to its extremely wide scope, protean nature and high degree of variability. It is adaptable to each field of regulation, can be fully or partly self-funded, has its own internal sanctioning regime, can be used in association with other sanctions, can be applied as both risk-based and responsive regulation and, when properly constructed and administered, can meet the requirements of procedural justice and the principles of good regulation. Although there are no templates for licensing schemes, they generally contain a number of common elements and procedures.

- **A regulatory authority:** issued by a range of government departments and statutory bodies. These bodies, established by statute, are given powers to license, authorize, approve or register activities under the relevant legislation, promote and monitor compliance, detect and respond to contraventions of the legislation and provide advice to governments, among

other functions. Where a license is issued by an administrative agency, it is usually a discretionary decision and therefore subject to review or appeal.

Licensing authorities vary widely from sector to sector and jurisdiction to jurisdiction. A particular industry-specific model can combine licensing, investigation and supervision and disciplinary functions for an occupation or industry in a body that involves members of the industry in the regulatory body (Smith and Ward, 2005, p. 104). Supervision in a non-industry specific model may be undertaken by a government department, with disciplinary actions being the responsibility of an independent administrative body, such as a state tribunal. In a third model, an independent statutory authority is responsible for the licensing functions, a second government department deals with consumer protection and a third deals with administrative review.

- **Application procedures:** these will set out the methods for the granting, amendment, transfer, renewal, restoration and replacement of licenses.
- **Determination of applications:** a licensing scheme will contain delivery for the provision of necessary information to the regulatory authority, the advertising or withdrawal of applications, the periods within which the applications must be dealt with and the mechanisms by which a license is issued.
- **Specification of minimum standards:** a licensing authority may require a license holder to meet certain minimum standards that may relate to age; criminal background; character; competence; education or other qualifications; language skills; and professional or other experience.
- **Awarding of licenses:** licenses may take many forms even within a general field of activity. Liquor licenses, for example, may be general or limited in terms of time, on-premises, for restaurants or cafes only, for clubs, packaged liquor, for late night only, for pre-retail sales, for major events, for producers of wine and beer and for other place or product categories. Drivers licenses may be for certain classes of vehicle, for learners or for persons with limited physical capacity.
- **Specification of conditions:** the conditions attached to a license are variable and adaptable to the requirements of the activity or industry. Conditions may relate to the type, hours or place of activity, quantities or quotas, compliance with planning schemes, codes of conduct or other external requirements or any other conditions that the licensing authority thinks fit.
- **Enforcement and sanctioning provisions:** licensing schemes will contain their own enforcement and sanctioning mechanisms. Internal disciplinary procedures may be provided for internally or by judicial or semi-judicial tribunals. The schemes may also give the regulator power to inspect or audit, and to require the provision of information to the licensing authority or the keeping and retention of records, including place and time requirements. Schemes may have their own enforcement staff (authorized officers) and procedures that empower them to enter and search premises, require information and seize goods or equipment.

  Sanctions may include provisions for cancelation, suspension and variation of licenses and disqualification from obtaining a license in the future. Such internal sanctions may be more punitive than criminal sanctions in that the financial impact of a loss of license may be far greater than a fine, depending on the nature of the activity. The stigma attached to the loss of a professional license may be equivalent to that of a sentence of imprisonment. On the other hand, where withdrawal of a license is the principal or most significant sanction available to a regulator, it may, paradoxically, be little used because of its very drastic consequences (Australian Law Reform Commission, 2002, p. 365). For example, the loss of a broadcasting

or banking license may have such overwhelming consequences for the organization, its members or the community, that the sanction may never be used in the absence of lesser, related penalties such as temporary suspensions.

Other than license-related sanctions, a licensing scheme may also contain internal sanctions, such as banning orders and adverse publicity. License revocation can be combined with other sanctions, such as fines or imprisonment, and with information sanctions, such as education, or re-education, for example, for drunk drivers or food handlers. A scheme will generally be supported by criminal sanctions imposed by the courts for unlicensed activities, failure to comply with conditions or directions of authorized officers, obstructing authorized officers, providing false or misleading statements and for offences specific to the scheme. Other sanctions or powers may include provisions for undertakings, injunctions, infringement penalties and exclusion orders.

The power of licenses as a regulatory tool has resulted in an expansion of the mechanism of license withdrawal as a sanction in relation to activities unrelated to the original purpose of the license. For example, motor vehicle license suspension or cancelation is being used in relation to fines imposed for a wide range of activities that have nothing to do with motoring offences. License suspension or cancelation is increasingly being used to support other sanctions, such as fines, where other means of enforcement may have failed.

- **Appellate or review systems or bodies:** procedural justice considerations require that administrative decisions be reviewable or appealable. Reviews may be internal and generally decisions will be subject to review or appeal in an administrative appeal tribunal or court of law.

Permits

A permit can be regarded as a limited form of license, usually distinguished from a license in terms of its duration or its specificity in relation to the individual circumstances of the applicant (Biber and Ruhl, 2014, p. 140).[14]

Licenses may be perpetual or for various periods of times, whereas permits are generally regarded as short-term authorizations for limited purposes. Like licenses, permits may be subject to conditions that relate to the object of the permit. Common conditions relate to time, space, rate, quantity and method of operation. Permits, or the conditions thereunder, may be varied, revoked or canceled by the regulator.

In contrast to general licenses, permit schemes may allow for the tailoring of permissions for activities that may not comply with general prescriptive standards. They may be preferred where general standards are not flexible enough to allow for non-complying activities or where general standards are unable to be updated with sufficient speed to respond to technological or social changes.

Registration

Registration is a formal requirement that a person or organization provides a regulatory authority with information that is entered into a formal document referred to as a 'register.' A register provides the state and the community generally with information regarding the registered person or organization. Registration is primarily aimed at addressing problems of information asymmetry. For the state, it provides information about its citizens.

Registration can provide information to consumers who may then decide how and whether to deal with a registered business on the basis of that knowledge. Business registration, for example,

can provide consumers or other businesses with information about the identity of the person who owns or manages a business and may facilitate redress by private individuals or enforcement action by regulators by identifying the person behind an organization and its place of business (IPART, 2013, p. 111). In relation to information asymmetries, registering business names may prevent confusion by not permitting multiple uses of the same names.

Registration is less restrictive than a license in that in some cases a person can still engage in the activity even if not registered. However, registration often serves as an adjunct to other regulatory tools such as licenses, permits, accreditation and grants, where registration is required for a license to be issued or a grant to be made.

Certification

Certification is a system of formal or authoritative recognition that an event has occurred, or that a person or organization has attained certain qualifications, met specified standards or adopted certain processes. Birth, death and marriage certificates, certificates of academic or technical achievement or common or approved standards such as fuel or water consumption are examples of authoritative declarations. Product certification is one means of differentiating one manufacturer, producer or retailer from another in the market (Australia, Senate Economics References Committee, 2015, p. 3).

Generally, a non-certified person or organization may still undertake an activity or practice (Friedman, 1962, p. 144; Priest, 1997–98, p. 252). Certification, therefore, does not restrict access to services in the same way that licensing does. A certificate need not of itself convey any privilege or sanction: it is "a mixture of giving information and wielding authority" (Hood, 1983, p. 56), but there may be sanctions for using a title without being certified (Priest, 1997–98, p. 252).

Certification and labeling are related authorizing activities. Food labels may carry certificates from third parties stating, for example, that the product conforms to religious laws (halal, kosher), meets ethical, environmental or sustainability standards (Fairtrade, Forest Stewardship Council) or is organic or genetically modified (Blewett et al., 2011, p. 102; Australia, Senate Economics References Committee, 2015, p. 3). It may provide information about the country of origin. Certification may be a means of gaining entry into certain markets, for example, those that require a religious certification. It also provides a quality assurance measure in some circumstances (Australia, Senate Economics References Committee, 2015, p. 4).

Certification is an expanding business: it has been estimated that the global certification market for food in 2013 was US$10 billion—1.4 percent of the total value of the global food and agriculture industry Australia (Senate Economics References Committee, 2015, p. 4).

Accreditation

Accreditation is formal expression by a private or public body of an authoritative opinion concerning the acceptability, under objective quality standards fairly applied, of the services rendered by a particular institutional provider or the stated attributes of a product. The objective quality standards may be national or international, internal industry or professional standards or forms of government requirement. Accreditation is a form of informational regulation that provides a token of trust, allowing consumers to rely on the opinions of others as to the qualities of the person or organization in question. It is a market-based approach in that its power derives from the information provided to consumers (Bartley, 2011, p. 442).

The purposes of accreditation are various: to provide an authoritative statement or attestation that the person or organization accredited has met certain standards and has the competence

and capacity to undertake the relevant activity; to manage the risks associated with that activity; and to protect the public by ensuring that only suitable persons and organizations may practice certain professions or occupations. Its overall aim is to give all interested parties, including the customers of the accredited organizations, the clients of the accredited bodies, government and non-government bodies and consumers generally, confidence that the product, process or service meets the requisite standard.

The use of accreditation as a means of recognition by governments, statutory authorities, boards or councils or private third parties emerged in the early 1980s with the development of the concepts of self-regulation and private third-party regulation. This was partly the product of reforms that encouraged competition between public and private providers and partly as a consequence of the growing information economy with the concomitant problems of greater information asymmetries (Bartley, 2011, p. 445; Lambert, 2015, p. 8). Together with the emergence of the power of non-government organizations in influencing government and consumer behavior within and beyond national boundaries, accreditation has become a significant form of both private and public regulation.

Accreditation requirements will vary according to the activity being accredited and may involve requirements for educational qualifications, skills, knowledge and experience required; requirements for professional development; and adherence to a code of conduct.

Generally, accreditation is voluntary. A non-accredited organization or firm will still be allowed to operate in an industry, but with accreditation there is clear information for consumers about which businesses have been approved as meeting the accreditation standards. Accreditation *per se* does not restrict entry into a market and hence is less restrictive than licensing (Cope, 2004, p. 95). It can be used by industry bodies, non-governmental organizations (NGOs) and governments to set standards. Where it is used by government, it can be linked with registration or licensing. In some cases, it may be an offence to operate without accreditation, which makes the accreditation tantamount to a license to operate. Accreditation may be required for the purposes of receiving a government grant, without which an organization may not be viable.

Accreditation schemes are widespread and are presently used in a number of professions, occupations, organizations and activities. Over recent years, they have been applied to schemes of private international regulation such as fair trade products and forest stewardship (Bartley, 2011, p. 444).

Accreditation may be the preferred mode of regulation:

> Where the primary purpose of regulation is to inform consumers so they can judge which businesses have the skills to provide a high quality product or service [but does] not, however, prevent consumers from choosing a lower priced, non-accredited service provider. In industries that provide a range of services, only some of which require a high level of skills, accreditation can assist consumers to choose highly skilled providers when they need to, but also to opt for a lower priced service when those skills are not needed.
>
> *(Consumer Affairs Victoria, 2006, p. 20)*

Accreditation has a number of benefits for the accredited organization. Generally, the formal recognition that an organization has met the required standards simply amounts to a statement that the organization can be trusted in terms of the quality of its goods or services. Where an accreditation is recognized by government, it may have the effect of increasing the length of a license or permit to operate, reduce the number of license conditions or the conditions themselves in order to make them less onerous or decrease the number of reporting or monitoring obligations (Productivity Commission, 2013, p. 121).

Other than when incorporated, or referred to, in legislation, accreditation is non-coercive. Providers can decide whether or not to be accredited and consumers can decide whether or not to purchase their goods and services. Accreditors have no statutory powers over the organizations that they accredit but may have specified powers under the contract of engagement. Although there may be sanctions for non-compliance under the contract, the ultimate sanction available to an accreditor is to not issue the authorization (Mascini, 2014, p. 7).

Accrediting Bodies

Accreditation may be provided by a government authority or agency, a body appointed by government, an independent body, a government company operating on behalf of government, a private organization, an industry peak body or an international non-government organization, such as the Forest Stewardship Council (Gale, 2013). Where accreditation is undertaken by a private body, it is generally not subject to oversight by government. The addition of a third party may act as an additional layer of trust to private regulatory systems (Blewett et al., 2011, p. 101).

Self-Accreditation

Accreditation usually refers to accreditation by an outside body; however, there are limited forms of self-accreditation whereby institutions such as higher education providers are authorized to self-accredit their services subject to statutory requirements and oversight in relation to appropriate standards, the duration of the accreditation and requirements to be monitored (Lee Dow and Braithwaite, 2013, p. 5).

Third Party Accreditation or Certification

Third party accreditation refers to the use of a party other than the provider or purchaser of goods or services to verify that the goods or services meet a certain standard. Accreditation or certification may be required by a purchaser as part of a contract or by a government authority for the purpose of granting a registration, permit, approval or license or awarding a contract or grant.

In many contexts, third party accreditors, certifiers or auditors are paid for by the organization being accredited, certified or audited.[15] This creates a conflict of interest for the accrediting body. On the one hand, it has a financial interest in maintaining a business relationship with the organization being accredited, while at the same time it will seek to maintain its professional reputation as an independent and trusted body (Lytton and McAllister, 2014). Accreditation by private bodies may be less credible than that undertaken by public, or publicly authorized, bodies, if the private body is acting, or seen to be acting, in its own interests, or those of its industry peers, rather than the interests of the public at large (Havighurst, 1994, pp. 2–3).

A number of mechanisms are available to address these conflicts. Accrediting bodies may themselves be required to be accredited as a form of meta-regulation. For example, the International Accreditation Forum is an association of Conformity Assessment[16] Accreditation Bodies that aims to "develop a single worldwide program of conformity assessment which reduced risk for business and its customers by assuring them that accredited certificates may be relied upon."[17] Accreditation Services International is an accreditation body for sustainable standards that accredits environmental standards systems such as the Forest Stewardship Council, the Marine Stewardship Council, the Aquaculture Stewardship Council and others.[18]

Another mechanism to address potential conflicts of interest requires the accrediting body to declare any conflict. Limitations may be imposed upon the number of audits or accreditations

that may be undertaken by one organization to ensure that the parties do not develop too close a relationship (National Transport Commission, 2014, p. 13). In some jurisdictions, accreditors may be allocated by a government authority, thus taking the decision out of the hands of the organization being accredited, although the cost of accreditation still falls on the organization (Victorian Auditor-General's Office, 2015, para 2.4.1).

Accreditors may be required to adequately document their procedures and decisions, report accurately to a body relying on the accreditation and require training and support for accreditors and ongoing monitoring of their activities (Victorian Auditor-General's Office, 2015, para 2.4.1).

The credibility of an authorization scheme will also depend upon the enforcement of the scheme. When accreditation schemes are put in place, it is imperative that they be monitored, audited or inspected to ensure that the systems have actually been implemented and maintained, particularly when accreditation forms the basis for the relaxation of other government regulatory interventions.

Competition Between Accrediting Bodies

Accreditation bodies may have the exclusive rights to accredit a person or body, or there may be multiple accreditation bodies. Havighurst (1994, p. 5) has argued that:

> a strong case can be made for actively preserving and encouraging competition in accrediting and, more generally, for maintaining a dynamic marketplace of ideas in which information flows from a plurality of sources and in which the quality of information produced by each supplier is subject to constant evaluation and criticism.

However, while regulatory competition may lower prices, multiple accreditation bodies may only serve to confuse consumers and undermine the value of the accreditation process by failing to provide a clear guide as to which body to trust (Havighurst, 1994: 10). Having multiple accreditors may also increase costs for persons or organizations seeking accreditation. Ultimately, both governments and consumers must decide on the credibility of the accreditation provider.

Certification, Accreditation and the Role of Government

The relationship between private authorizers and governments is complex. Private authorization may suit private interests by enhancing the reputation of the organization being certified or accredited, but public interests can also be involved in the exercise. Using their procurement powers, governments may influence the conduct of producers by giving preference in their purchasing practices to certified or accredited products. Governments that produce products that are subject to relevant schemes, such as forest products, may themselves seek authorization from non-government bodies, and governments themselves may undertake the task of accreditation by setting the standards of accreditation, administering the scheme, facilitating the education and training of certifiers and ensuring compliance with the accreditation standards (Lambert, 2015, p. 14).

Private authorization may complement or augment public activities. Where governments lack the capacity or skill to provide credible authorization, they may contract out the functions—for example, replacing building inspectors with private certifiers (Lambert, 2015, p. 8). Where government tasks are so contracted out, they may be regarded as undertaking a regulatory function

and be subject to certain accountability mechanisms, such as being subject to the scrutiny of an anti-corruption body. The Australian Productivity Commission (2013, p. 121) has observed that:

> Where any outsourcing or third party processes are relied on, the regulator remains responsible for ensuring regulatory requirements are being satisfied. It is essential, therefore, that the regulator has appropriate monitoring and quality assurance systems in place to ensure standards are maintained and regulatory objectives are being met. For example, where private inspectors are utilised, there must be systems in place to certify their competency, create the right incentives for them to operate in the public interest and impose appropriate sanctions when they do not meet their obligations. Governments must also ensure that there are no unnecessary legislative or other constraints on the capacity of regulators to adopt such strategies where appropriate.

Authorizations and Red Tape

All forms of authorization involve some requirement or requirements on the regulatee by the regulator that imposes a financial or resource costs upon them. Consequently, authorization is constantly the subject of regulatory reviews aimed at reducing red tape in the form of delay costs, compliance costs and financial costs (VCEC, 2013, p. 14). The pressure to reduce regulatory burdens is particularly evident in respect of licenses and registrations, which most often require renewal at regular intervals. Regulatory burdens are also imposed by notification and reporting requirements and liability to audit and inspection.

There are wide variations in license duration across license types and jurisdictions. In theory, all licenses could be perpetual. But under certain circumstances, the duration should be limited—for example, where: (1) there are likely to be material, relevant changes in the characteristics of licenses; (2) there are likely to be material, relevant changes in the level or type of competency, conduct or attributes required of licenses; and (3) there is an ongoing need for fees and charges to recover the cost of regulatory activities or scarcity rents (PriceWaterhouseCoopers, 2013, p. 26; VCEC, 2013, p. 14).

The greatest relief from the regulatory burdens imposed by authorization[19] comes from reducing the frequency of renewals (IPART, 2013, pp. 1, 5). Other savings may be found in simplifying the application and renewal process, limiting reporting requirements or, in federations, increasing the number of federal licenses and decreasing the number of state or provincial licenses in order to reduce duplication. Where new forms of licenses are being considered or existing licenses are renewed, regulators are encouraged to consider opportunities for harmonization with other jurisdictions or mutual recognition between jurisdictions within the same polity (IPART, 2013, p. 60; United States, 2015, p. 5).

Authorization and Competition

Authorization tools generally have the effect of restricting competition where they limit access to an activity, profession or occupation. Competition policies acknowledge the tension between the need to protect consumers and the desire to ensure that goods and services are delivered at the lowest cost and with greatest efficiency. Authorization tools have the potential to blunt the advantageous effects of competition on the price, quantity and quality of goods and services. Quantitative limits on providers serve to restrict competition without necessarily benefiting consumers (Harper et al., 2015, p. 140). Further, by restricting access to markets, some forms of

authorization can inhibit innovation, which, in the longer term, could act to the detriment of consumers (Harper et al., 2015, p. 140).

Licenses that place restrictions on market entry can force prices up, not only by restricting competition but through the cost of obtaining and maintaining the licenses.[20] Such costs will differentially affect existing or future regulatees.[21] Smaller firms may be less able to bear the costs of obtaining entry to a market than larger organizations (Biber and Ruhl, 2014, p. 180). The holders of existing licenses will have strong incentives to advocate the retention of restrictions on new entrants, and new entrants may face higher entry costs than incumbents. State-based licensing may restrict labor mobility and so lessen competition between jurisdictions. As a result, licensing may lead to a less efficient use of resources and create and maintain rigidities in markets by limiting access and cementing market power (Priest, 1997–98, p. 254; Consumer Affairs Victoria, 2006, p. 15; Kleiner, 2015; United States, 2015, pp. 4, 12).

McLaughlin and Stanley (2016) argue that entry regulations into business, in the form of business and occupational licensing and registration requirements, increase income inequality because entrepreneurs at the bottom rungs of income distribution have greater difficulty in overcoming the barriers to entry and therefore are less able to utilize their talents to maximize their earning capacity. Persons so excluded may be forced to work in other, less remunerative occupations or may operate illegally.

Where licensing is unnecessarily protective of small numbers of industry participants, it can result in ossification of business. In addition, it can result in over-qualification where barriers to entry are raised in order to protect existing participants rather than the public. Licensing may also encourage 'regulatory capture,' which occurs when too close a relationship develops between the regulator and the regulatee, to the advantage of the latter and to the detriment of the community whose interests regulators are meant to protect.

Conclusion

Longevity should not be equated with obsolescence. Authorization tools were amongst the first of the regulatory tools employed by governments, and their persistence and expansion is evidence of their utility in producing public value. By granting permission for a wide range of activities, collecting information about the activities and those involved in them, allocating scarce resources and providing some of the means by which information asymmetries can be addressed and trust created, governments promote a wide range of public policy objectives. And despite their cost, intrusiveness and the regulatory burdens that they impose, their flexibility and potential for cost recovery make authority tools highly attractive to governments. Notwithstanding the obvious restraints on competition, the public interest in regulation often outweighs market considerations.

The growth over the centuries of the use and forms of authorization reflects the increasing complexity of society, the development of new technologies, the emergence of scientific and professional disciplines and an increasing aversion to risk as well as pressures by some businesses to protect their activities from competition (IPART, 2013, p. 1). Over the past 30 years, authorizing activities have expanded from predominantly state-based verification systems (licensing, registration, permits) to those that involve the private sector or non-government sector through accreditation and certification processes at local, national and transnational levels.

With the ostensible 'de-centering' of the state in regulation and the increased involvement of private parties in regulation, systems of certification and accreditation have grown. Their ostensibly private nature, however, masks the often direct and sometimes subtle role of governments

in supervising, incorporating or authorizing these private regulatory systems. The increased use of forms of private governance can be attributed to the changing role of government identified as the New Public Management, the pressure to reduce the role of government in economic activities, the growing preference for market-based instruments and a recognition of the limits of government resources and power. The growth of private international regulation is also a response to the limits of national power. Sometimes referred to as the rise of the 'audit society,' the development of various forms of private certification and accreditation regimes, nationally and internationally, has had the effect of increasing the scope of regulation beyond the state without necessarily decreasing the regulatory burden on organizations.

With the growth of digital technologies and other forms of information generation, individuals and organizations may become less reliant on governments to redress information asymmetries and more willing to trust other sources of information such as social media, commercial organizations and peer-to-peer platforms. Activities such as transport (e.g., Uber) and accommodation (e.g., Airbnb) are increasingly informally regulated through provider/consumer rating systems (United States, 2015, p. 34). In its examination of the disruptive effects of the digital economy, the Australian Productivity Commission (2016, p. 63) suggested that in areas such as occupational licensing, information asymmetries may be overcome by digital platforms, thus reducing the need for, or the scope of, government licensing or accreditation schemes, as long as the information provided is accurate and unbiased and the risks of harm are not large.

But as the history of regulation has shown, new forms of regulation tend to be accretive rather than destructive, building upon rather than replacing earlier modes of regulation. Authorization tools will survive and prosper by adapting to change, because they address so many of the reasons for regulation—market failures, externalities, harm prevention, risk management and the creation and maintenance of trust in a society—and because they do so through complex institutional forms that are at the center of the extra-ordinarily resilient 'administrative state.' If authority tools do not remain the first port of call for regulators, they will continue to form a large and essential part of the policy designer's repertoire.

Notes

1. This chapter is based on Freiberg (2017, Chapter 9).
2. Which involves the manipulation of the production, allocation or use of material resources such as money or property, in all its forms, as well as the use of markets as regulatory tools.
3. A variant of economic regulation where the *form* of the economic tool assumes great importance but also involves the use of consensual or ostensibly consensual agreements between governments and non-government parties to achieve a government's objectives.
4. Which relates to access to information, knowledge or beliefs as well as the deployment or manipulation of knowledge of how people behave in order to nudge them into behaving in particular ways.
5. Which relates to the ability to manipulate the physical or technological environment to determine or influence action.
6. Many such forms of regulation can be traced back to Tudor times in England. Charters and letters patent were early forms of market regulation. The medieval guild system was an outstanding example of governmental or quasi-governmental regulation of access to markets (Friedman, 1962, p. 137; Hood, 1983, p. 54). In Australia, licensing and registration were among the earliest forms of regulation used by the fledgling colony as far back as the 1830s (Freiberg, 2017, Chapter 2). For a history of occupational licensing in the United States, see Kleiner (2015, Chapter 2).
7. Applying for, or renewing, a license, permit or registration is likely to be one of the most common forms of contact between an individual and a local, state or federal government regulator.
8. It has been estimated that there were around 24,000 different licenses for businesses and occupations in Australia in 2006, growing to around 32,000 in 2014 (Douglas, 2014, p. 6; Australia, Regulation Taskforce, 2006, p. 6).

9. In the United States, around 30 percent of employees are covered in some 800 occupations, and the number of licensed workers at state level has increased by 500 percent since the 1950s (Kleiner, 2015, p. 1; United States, 2015, p. 3). In the European Union, an estimated 800 professions are affected by occupational legislation in at least one country (Kleiner, 2015, p. 63). In the United Kingdom, there are some 131 regulated occupations (Kleiner, 2015, p. 69).
10. See also United States (2015, p. 7, fn 6) defining licensing, certification and registration in the context of occupational licensing.
11. Adapted from Havighurst (1994, p. 2).
12. An information asymmetry occurs when one party in a transaction has more information than another and this information has an important bearing on the price or terms of the transaction (Australian Government, 2014, p. 18).
13. The evidence that licensing has a direct positive influence on quality is equivocal: see United States (2015, p. 58) and Kleiner (2015, p. 28), arguing that large variations in licensing requirements between jurisdictions in the United States indicates that these requirements have little relationship to the ability of the license to undertake the tasks that are licensed.
14. The present discussion does not cover the use of tradeable permits, which are an integral element of market-based environmental regulation regimes. See Baldwin et al. (2012, p. 117).
15. For brevity, these will be referred to as accrediting bodies.
16. 'Conformity assessment' or 'compliance assessment' include testing, surveillance, inspection, auditing, certification, registration and accreditation; <https://en.wikipedia.org/wiki/Conformity_assessment>.
17. See <www.iaf.nu/>. There are standards for product certification systems; see, e.g., ISO/IEC Guide 65/1966.
18. See <www.accreditation-services.com/about/asi>.
19. Government administration costs, compliance costs, fewer fees and charges, etc.
20. Not all licenses restrict competition. 'Permission' licenses allow a license to undertake an activity provided that the person meets the requirements of the license, but do not limit the number of licenses (IPART, 2013, p. 50).
21. In the United States, it has been estimated that occupational licensing raises wages by between 10 and 18 percent (Kleiner, 2015, p. 3).

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17
TREASURE TOOLS
A Primer on Subsidies[1]

Ronald Steenblik

Getting to Know Subsidies

Why Be Concerned About Subsidies?

Why should you, as a citizen, care about subsidies? After all, don't many subsidies serve useful purposes? Yes, they do. Subsidies enable children from poor families to attend higher education. They support research vital to developing new vaccines and predicting natural disasters. And they help unemployed people to learn new skills, or to relocate to areas with better job prospects. But precisely because government expenditure is limited, citizens should care about subsidies if for no other reason than to ensure that they serve the public interest and not merely private ones. Nothing speaks louder about a government's actual intentions and activities than how it spends its money—your money. A lawmaker may proclaim support for energy conservation, yet still vote for generous tax breaks to buyers of large, gas-guzzling vehicles. A president may lecture an international gathering on the importance of helping developing countries to export their way out of poverty and later that same day approve a new subsidy that effectively blocks imports from those same countries.

The second reason to care about subsidies is that they can have profound and long-lasting effects on the economy, the distribution of income in society and the environment, both at home and abroad. Subsidies have shaped the pattern and methods of agricultural production, even in countries that provide few or no farm subsidies. They have encouraged fishing fleets to search farther and deeper than ever before, aggravating the problem of over-fishing. They have fueled unsustainable energy production and consumption patterns. And, most worryingly, they continue to do so.

What Is a Subsidy?

The word subsidy is derived from the Latin word *subsidium*, which meant "support, assistance, aid, help, protection." In medieval times, it referred to a payment made to the king. While the definition has since moved on from that, the habit of royalty accepting subsidies has not. Republics like France and the United States no longer have sovereign rulers, but some of their farmers live like kings, thanks to generous subsidies.

Nowadays, to most people, a subsidy means a payment from a government to a person or company. Many subsidies are indeed provided in that form, as grants or, more generically, direct payments. Grants are the elephants in the subsidy zoo: they are large and highly visible. But there are numerous other subsidy beasts that are better camouflaged, stealthier and keep closer to the ground. The only internationally agreed definitions of a subsidy are those of the United Nations Statistics Division, which is used for the purpose of constructing national accounts, and of the World Trade Organization (WTO), which is used for the purpose of regulating the use of subsidies that affect trade. The WTO definition is the more comprehensive of the two and can be summed up as follows: A subsidy is a financial contribution by a government, or agent of a government, that confers a benefit on its recipients.

There are many people in the world, particularly environmental economists, who would like to add to that definition. But for the purposes of this primer, it provides an adequate entry point to the topic.

Penetrating the Rhetoric of Subsidies

The English language offers a rich vocabulary for expressing the notion of subsidy. Familiarization with these synonyms is useful for both understanding the rhetoric of subsidies and conducting literature and data searches. State aids is the term used within the European Union for subsidies provided by its Member States. It is used also by some U.S. states. 'Aid' by itself, because of its common association with foreign aid, is used less frequently than in the past to mean a domestic subsidy. Industry assistance is a more general term than subsidy and can include low-cost general services, such as advice to small businesses on how to fill in their tax forms. Lawmakers like speaking of aid or assistance because the terms are subtly suggestive of short-term help or relief, even though the programs involved may be long-running.

The word 'support' has a precise meaning within the trade-policy community. The OECD, for example, refers to support when discussing its aggregate of subsidies and transfers to producers created through artificially high prices (i.e., market price support), the producer support equivalent, or PSE. Domestic support and aggregate measurement of support are terms used in reference to obligations under the WTO's Agreement on Agriculture.

In the political sphere, however, 'support' is highly imprecise. When a government declares it 'supports' a particular technology, industry or sector, that 'support' can mean anything from simple well wishes to suitcases of money. Perhaps the most ambiguous euphemism for 'subsidy' is incentive. That is because an incentive can be positive or negative. For example, use of a relatively clean form of energy can be stimulated either by a tax on more-polluting forms of energy or through a subsidy to consumers of the cleaner energy. The budgetary implications of the two forms of incentive could not be more different.

The Notion of Specificity

One of the important distinctions used by economists and lawyers interested in the trade or competition effects of subsidies is between specific and non-specific subsidies. Specific subsidies go to particular groups of beneficiaries, as opposed to the population as a whole. A subsidy that is available only to cotton farmers is specific. A subsidy to supply flu vaccine for anybody who needs one is considered (by trade lawyers, at least) to be non-specific, because almost anybody can benefit from it. The notion of specificity provides a useful conceptual framework for considering whether a subsidy is likely to distort trade or competition. However, the distinction between a specific and general subsidy is not always easy to make.

Whether a subsidy is specific or general is less relevant to the question of whether a subsidy has adverse environmental effects. Some very general subsidies can have major environmental impacts. Roads and ports provide numerous economic benefits, but roads may also cut across and fragment wildlife habitat, and ports may damage estuaries or fishing grounds. Subsidies, to the extent they stimulate the construction and use of such physical infrastructure, can contribute to these damaging effects.

The Effects of Subsidies

The Opportunity Cost of Subsidies

People who defend subsidies for particular sectors often highlight the goods or services that have been produced or the new jobs created. What they do not normally acknowledge is that the benefits to society of that money, if it had been spent otherwise or left in the pockets of taxpayers, might have been even greater. Economists refer to the value of an expenditure in its highest alternative use as its 'opportunity cost.' The concept of opportunity cost is reasonably intuitive. At the household level, if a person spends $100 on a night on the town, that $100 is no longer available to buy necessities, like food. Similarly, if a government spends $100,000 on a bridge that few people will use, that money is not available to be spent on education or health care or any other government priority. Because of taxes and other feedback mechanisms in an economy, the analogy between the government and a household is not perfect. But in the presence of a budget constraint, all spending decisions, at the margin, imply trade-offs.

Ideally, a government would strive to structure its expenditures so as to achieve a return to society that is roughly similar for each dollar spent. Subsidies can easily upset that balance. Consider a hydro-electric project that also provides water to irrigate adjacent farmland. A cubic meter of water from its reservoir has a high value when it passes through turbines and generates electricity, but also to a farmer growing thirsty crops. Nevertheless, the incremental value of an additional cubic meter of water may well be much higher when used to generate electricity than to irrigate the farmer's crops. Policies—such as subsidies that allow the farmer to pump out the water from the reservoir at a very low cost or that artificially increase the profitability of farming—will result in some of the water being diverted to its lower-value use. In that case, the economy as a whole generates a smaller surplus.

The Static Effects of Subsidies on Efficiency

Economists may not agree among themselves on the precise definition of a subsidy, but they do generally agree on their static, first-order effects. Theory shows that these depend on a number of factors, among which are the responsiveness of producers and consumers to changes in prices (what economists call the own-price elasticities of supply and demand), the form of the subsidy, the conditions attached to it and how the subsidy interacts with other policies.

In general terms, elasticities of supply and demand determine to what extent the actual, economic incidence diverges from the intended impact incidence of a subsidy: in a seller's market, consumer subsidies will be shifted onward to producers and vice-versa. Other policies can also influence outcomes, as when production quotas are imposed on the subsidized activities. Critics often point to the economic distortions created by subsidies, especially subsidies that are used to promote specific sectors or industries. Generally, such subsidies tend to divert resources from more productive to less productive uses, thus reducing economic efficiency.

Those who take a more benign view argue that subsidies can serve redistributive goals or can help to correct market failures. But, as the public-finance economist Ronald Gerritse once warned, subsidies defended on such grounds "may have externalities that we did not bargain for." Indeed, it is such second-order effects that have come under attack by environmental economists in recent years.

The Dynamic Effects of Subsidization

There is a tendency over time for the benefits from subsidy programs to become capitalized into the least elastic factor of production. The economist Gordon Tullock labeled this phenomenon "the transitional gains trap" (Tullock, 1975). As Professor Tullock explains, the gains from subsidies tend to be transitional, accruing mainly to those who can immediately take advantage of a new scheme. Their successors end up paying higher prices for land, fishing licenses, mineral rights, etcetera. As such, removing the subsidy thus risks imposing a transitional loss on the subsequent owners of these assets.

The beneficiaries of a subsidy can become entrapped in a social sense as well. This is especially the case when subsidies are used to support employment in rural industries, such as agriculture, fisheries and mining, which require specialized skills but not necessarily much formal education. The resulting low mobility of the affected labor force itself becomes a barrier to policy reform, increasing subsidy dependency, making structural adjustment all the more traumatic when it finally does come.

Subsidies that are linked to particular technologies can have profound, long-term effects on dynamic efficiency. Many energy-related subsidies (and regulations) have been of this sort. The more prescriptive they are and the less targeted at the achievement of policy outcomes, the greater the opportunities for distortions and unintended consequences. The challenge for policymakers is to achieve a balance between the benefits of stimulating R&D and innovation while not forcing technological responses to economic and environmental forces down irreversible paths. Once governments had invested billions of dollars supporting the development of civilian nuclear power, for example, there was a strong impetus to continue with the original designs.

The Distribution of Subsidies

Many subsidies are defended as benefiting disadvantaged groups or groups that politicians like to make us believe are disadvantaged. Some do that, but even those that do benefit disadvantaged groups often benefit richer people or companies even more.

Perversely, the distributive consequences of subsidies are often precisely the opposite of what the framers of the policies intended. Most countries that subsidize farmers or fishers profess to be looking out for the small owner-operator. Yet, by design, subsidies that are tied to outputs or inputs tend to favor larger producing units. For example, the Environmental Working Group, an American non-profit organization, counted up all the direct payments made by the U.S. government to farmers between 1994 and 2005 and found that 10% of subsidy recipients collected 73% of all subsidies, amounting to $120.5 billion. Analyses of agricultural support programs in other countries appear to lend credence to the 80:20 rule—the impression that 80% of support goes to 20% of the beneficiaries.

The conduit between a government and the intended recipient of a subsidy is often more like an open sluice than a pipeline, with plenty of opportunities for others to dip into the stream before it reaches its final destination. Any subsidies that are linked to the production of a good or service require the recipient to spend money on inputs used in producing that good or service.

For example, if a farmer is paid by the government to grow corn, she will first have to spend some of that money on seeds, fertilizers, pesticides and fuel for the tractor. What is left as an increase in income may be only 20% or 25% of the cost to the government.

Economists call the ratio between what ends up in the pockets of the target group and what the government spends the transfer efficiency of the subsidy. Subsidies for the purchase of inputs, by lowering the producer's costs, can have a fairly high transfer efficiency, but only if the supply is not limited. If the seller of the subsidized good is a monopoly or there is a finite supply of the input, the subsidy will mainly enrich the input provider.

Effects on the Environment

Governments do not set out intentionally to damage the environment just for the sake of it. They may not care very much about the environmental consequences of the activities they support, but that is not quite the same thing. Rather, when people speak of 'environmentally harmful subsidies,' they generally mean subsidies that support production, transport or consumption that ends up damaging the environment. The environmental consequences of subsidies to extractive industries are closely linked to the activity being subsidized, like fishing or logging.

Subsidies to promote offshore fishing are a commonly cited example of environmentally harmful subsidies, with support that increases fishing capacity (e.g., subsidies toward constructing new boats) linked to the depletion of important fishery stocks. In other industries, subsidies that promote consumption or production have led to higher volumes of waste or emissions. For example, irrigation subsidies often encourage crops that are farmed intensively, which in turn leads to higher levels of fertilizer use than would occur otherwise. Moreover, irrigation subsidies can lead to the underpricing of irrigated water, which in turn fosters the overuse and inefficient use of water.

While many subsidies have unintended negative consequences on the environment, well designed subsidies can be beneficial when they work to mitigate an environmental problem. In the context of fisheries, for instance, these would include subsidies to management programs that help ensure that fisheries resources are appropriately managed and that regulations are enforced or to research and development (R&D) designed to promote less environmentally destructive forms of fish catching and processing.

The Political Economy of Subsidies

Given the various shortcomings of subsidies, why do governments keep resorting to them? One basic problem is that, although governments are often motivated to provide subsidies in order to benefit specific groups of people—or, more specifically, voters—they rarely like to be seen doing it through such blatant devices as direct income payments. Activities or things ('merit goods') tend to get subsidized rather than people.

The tendency to subsidize things, instead of helping people directly, contributes to the second, and related, problem, which the economist Gordon Tullock labeled 'the transitional gains trap.' This refers to the tendency over time for benefits flowing from subsidy programs to increase the value of associated fixed assets, like land or dairy quotas. Removing the subsidy thus risks imposing a transitional loss on the subsequent owners of these assets. Subsidies themselves create a pool of money out of which recipients can influence the very political process that channels money to them in the first place. In many instances, subsidies redistribute wealth from a large number of unknowing contributors to a smaller number of beneficiaries. The latter lobby vigorously to defend their handouts; the former seldom bother, or are empowered, to prevent them.

Finally, the bureaucracy itself can present an obstacle. Government ministries rarely admit to having a vested interest in the continuation of the support programs they administer, but it is hard to imagine total disinterest being the norm. More subtly, the bureaucratization process often feeds a pervasive notion that the subsidized activity forms part of the natural order of things. Subsidies thus metamorphosize into entitlements, and any attempt to curb them becomes politically hazardous.

Subsidy Types

Grants and Other Direct Payments

The most basic form of a subsidy, and the one that still defines a subsidy in some dictionaries, is a cash payment or grant. Although few grants are paid out in currency any more (most are paid via check or bank transfer), it is still common to refer to them as 'cash' grants, payments or subsidies. Normally, a grant refers to a time-limited payment, either in connection with a specific investment or to enable an individual, company or organization to cover some or all of its general costs, or the costs of undertaking a specific activity, such as research.

Other direct payments may be linked to the volume of production or sales. In previous centuries, and still in Australia, these types of subsidies were called bounties. They are far from archaic, however. Cash payments to producers are also sometimes linked to prices. The main form is a deficiency payment, which makes up the difference between a target price for a good (typically an agricultural commodity) and the actual price received in the market. Various cash subsidies are paid to workers. Canada, for example, provides targeted wage subsidies to assist individuals to prepare for, obtain and maintain employment. Many countries provide grants in order to encourage people who are out of work to undergo training in new skills or to relocate.

Consumers also benefit from direct payments or vouchers, particularly for the purchase of necessities, like food, medicine or heating fuels. Alternatively, a government may regulate the consumer price for a good or service and instead pay a subsidy to the supplier of that good or service to cover its losses.

Market Price Support

Transfers of money to producers are typically divided into two broad categories: those provided at a cost to government, such as grants and tax concessions, and those provided through the market as a result of policies that raise prices artificially. The latter, called market price support (MPS), may derive from a domestic price intervention (for example, a minimum-price policy) and is usually supported by foreign trade barriers such as tariffs or quantitative restrictions on imports. The OECD defines MPS formally (for agriculture) as

> an indicator of the annual monetary value of gross transfers from consumers and taxpayers to agricultural producers arising from policy measures creating a gap between domestic producer prices and reference prices of a specific agricultural commodity measured at the farm-gate level.
>
> *(OECD, 2003)*

MPS is an element that is included in many studies of support to particular goods or sectors and is added together with other subsidies to yield an estimate of total support. The concept of market price support is simple enough. By maintaining an import tariff on a good, for example,

a government raises the price of that good above what it could sell at in the absence of the tariff. From the producers' standpoint, the revenues they will receive would be similar to those they would receive were the government instead to pay them an equivalent premium per unit produced. The main difference is that MPS raises domestic prices and may therefore dampen demand compared with a budget-financed price premium, especially if there are close substitutes that, as a result of raising the price of the targeted good, become relatively cheaper. In such situations, such as for coal for power generation, governments have sometimes solved the problem of changed relative prices by constraining the ability of consumers to shift to the competing product.

From the government's perspective, the advantage of providing support indirectly, through a market intervention, is that it is less transparent and the transfers do not appear in its budget. Rather than taxpayers, consumers bear the burden. For this reason, MPS is considered by economists to be one of the most market-distorting forms of support provided through government policies. Unfortunately, it is also still one of the largest elements of total support, especially in agriculture.

Tax Concessions

In countries with well-developed tax systems, subsidies provided by reducing companies' tax burdens are commonplace. Examples include tax exemptions (when a tax is not paid), tax credits (which reduce a tax otherwise due), tax deferrals (which delay the payment of a tax) and a host of other instruments. In common language, these preferential tax treatments are called tax breaks or tax concessions; public-finance economists refer to them as tax expenditures. They should not, however, be confused with general tax reductions.

Generally, when a government provides a tax break, its budget is affected in much the same way as if it had spent some of its own money. The exception is a tax credit, which is worth more to a corporate recipient (and costs a government more) than a direct payment of an equivalent nominal value, as a direct payment raises a company's taxable income and therefore is itself taxable.

Besides adding complexity to tax systems, tax concessions are often criticized by economists as being less transparent than grants and more resistant to change. Several national governments and even a few sub-national governments produce annual tax expenditure budgets. But the information contained in these 'budgets' is often reported at a highly aggregate level. Information on the value of tax breaks received by particular industries or companies is usually much more difficult to lay one's hands on.

When creating a new tax break, lawmakers sometimes set a limit on how long it may be used. But many tax breaks, once incorporated into the tax code, continue indefinitely. In contrast with a grant or similar subsidy, which has to be re-approved with each budget cycle, a tax break usually requires an active decision by lawmakers to eliminate it.

In-Kind Subsidies

The phrase 'in-kind' means provided in a form other than money. Typical in-kind benefits provided by governments are subsidized housing, specific infrastructure (like a road servicing a single mine or factory), the services required to maintain that infrastructure and various services to help exporters. They may be considered subsidies if they involve expenditure (or foregone revenue) by a government and they confer a specific benefit on the recipient. However, government provision of general infrastructure—e.g., highways and ports—is often excluded from the definition of an

in-kind subsidy, as is the case in the WTO's general agreement on subsidies, the Agreement on Subsidies and Countervailing Measures.

The value of an in-kind benefit depends on the price charged for the resource, good or service. When a government undercharges for something, the unit subsidy is usually considered equal to the difference between the price paid and the market price. When it charges a market price, the transaction is considered commercial and not a subsidy. Often, however, the government is a monopoly supplier of a good or service—i.e., there is no private market against which the government's prices can be compared—which increases significantly the difficulty of determining whether a subsidy is involved.

One important variant of an in-kind subsidy is privileged access to a government-owned or controlled natural resource. Primary industries benefit greatly from such access—e.g., to public lands for mining or grazing livestock, to state forests for logging, to rivers for irrigation and to foreign seas (through so-called access agreements) for fishing—for free or at a below-market price. International disputes over the subsidy element of privileged access to natural resources have been among the most contentious and long-running.

Cross Subsidies

A cross subsidy is a market transfer induced by discriminatory pricing practices within the scope of the same enterprise or agency. Typically, it exists when a government-owned enterprise, such as a public utility, uses revenues collected in one market segment to reduce prices charged for goods in another. Some definitions also include similar practices carried out by private firms, as when an integrated airline allocates part of the costs of its activities in a highly contested geographical or product market (e.g., the transport of freight) to another market (e.g., passenger transport) that is better able to bear those costs. For example, some airports cross-subsidize costs associated with serving airline passengers through sales on duty-free goods.

One of the most common forms of cross subsidy is that between consumers of electricity and consumers of irrigation water. Managers of large hydro-electric works that store and channel water for irrigation as well as generate electricity have to decide how to allocate the costs that are common to both activities (notably, the construction and maintenance of the dam and reservoir) between farmers and buyers of electricity. Government regulations will often dictate that an even smaller portion of the costs be allocated to irrigation than would be efficient according to established pricing principles.

Not all instances of price discrimination are evidence of cross subsidies, however. For example, differences in the volume (if there are economies of scale in delivery) and interruptibility of service, among other factors, can lead to different price schedules for different classes of customers.

Credit Subsidies and Government Guarantees

Many subsidies that have budgetary implications—that is, can create financial obligations for governments in the long run—never actually appear in budgetary statements. These 'hidden' subsidies are common whenever a government takes on the role of a banker or insurer to a company or industry. When a government loans money to a company at a lower rate of interest than a commercial bank would offer or requires less collateral to back up its loan, defers repayment or allows for a longer period to pay off the loan, the company saves money.

Governments also sometimes guarantee loans taken out by companies or individuals through commercial banks. That means that the government assumes the risk of default on the loan,

rather than the bank, which in turn means that the bank can offer the borrower more favorable lending terms, such as a lower rate of interest. Governments also serve as an insurer of last resort for private investments. All OECD governments with nuclear power plants, for example, are signatories to an agreement that limits the financial liability of power-plant owners in the event of a catastrophic accident. Similarly, many governments would be stuck with part of the bill following the failure of a large hydro-electric dam. For this type of support, years may pass before a government incurs any actual costs. But when an accident does occur, the financial burden (not to mention human cost) can be huge.

Hybrid Subsidies

Economic systems can be likened to ecological systems. In the steaming jungle that defines the borderland between private industry and government, camouflage and parasitism are common adaptive responses to competition. Subsidy hybrids, particularly instruments that exploit the tax system to lower the costs of private investment, are an inevitable result of those evolutionary forces. At the base of the evolutionary ladder are tax-free government bonds. A bond is a financial instrument that promises its holder a fixed annual dividend over a specified period of time, typically 10 to 20 years. National governments issue bonds to help finance their general activities. Municipalities, sub-national governments and their agencies (e.g., air-pollution control districts) also issue bonds, more commonly tied to specific projects, like water-treatment plants. The dividends paid to holders of such bonds are not taxed. Because tax-free status raises the net return on investment, particularly for bond holders in high marginal income-tax brackets, the bonds can offer a lower rate of interest than would have to be offered to buyers of private, commercial bonds in the same risk category.

Tax-free bonds are used also in some places to finance private investment: a corporation borrows money from a private lender, the bond buyer, which is issued by a public authority to become tax free. Higher up the evolutionary ladder are instruments like tax increment financing (TIF), a peculiar form of subsidy found in the United States. Tax-increment financing enables a city to split off future additional property tax revenues associated with a designated development and to provide a loan to the company undertaking that development, using the future incremental tax revenues as collateral. In effect, this revenue stream is diverted away from normal property tax uses, such as the funding of schools, and into the TIF district.

Derivative Subsidies

Subsidies have a tendency to beget other subsidies. Some of these are described below:

- Sympathetic support: When support is used to influence the direction of technological developments, it often does so in a manner designed to benefit domestic producers. Many examples of this can be found in the energy sector, such as when governments support the construction of coal-fired 'demonstration' power plants that are dependent on coal from high-cost domestic mines rather than on imported coal or for biofuel refineries that use domestic feedstocks.
- Compensatory or countervailing support: When support leads to higher input prices for downstream consumers, especially those that derive a significant proportion of their sales from exports, compensation is often provided in order to keep them buying domestically produced raw materials. Subsidies to food processing industries and to biofuel producers are common examples.

- Subsidy clusters: As the subsidy expert, Doug Koplow, has observed, when support—or failure to consider opportunity costs—leads to lower prices for natural resources, a chain reaction can take place, whereby new investment occurs to take advantage of the cheap input. Often, downstream consumers receive additional incentives from governments to do so. Hence, aluminum plants are attracted to major hydro-electric projects, which are then followed by airframe manufacturers, and so forth.

Taken together, these derivative subsidy forms lend support to the notion that bad subsidies tend to chase out good ones—what the agricultural economist C. Ford Runge (1996) has called "Gresham's law of subsidies." Political economy also suggests that the 'good' subsidies will over time be politically outmaneuvered by the established groups to redirect public spending to themselves.

Subsidies Through Government Procurement

The WTO Agreement on Subsidies and Countervailing Measures (ASCM) recognizes that a subsidy can exist when a government purchases goods "and a benefit is thereby conferred" (WTO, n.d., p. 229). The benefits the drafters of the ASCM had in mind were those resulting from purchases that take place under circumstances that do not accurately reflect normal market transactions. Governments practice preferential purchasing routinely, expressly favoring domestic over foreign suppliers of similar-quality goods—e.g., by paying domestic suppliers higher prices or offering special financing arrangements. The conflict of interest faced by governments is understandable. They are expected by taxpayers to be savvy buyers but are also under constant pressure to support domestic producers.

The magnitude of government procurement is enormous. A study from 2002 estimated that each year OECD countries spend $4.7 trillion procuring goods and services, particularly for state-run health services, public works and the military. Much of these purchases are made at market prices, but it is believed that a significant fraction of them include an element of subsidy. By establishing recommended procedures for tendering, negotiating and awarding government contracts, it outlines a desirable system of government procurement. However, monitoring and enforcement of the AGP is weak, and there are many ways in which governments can bypass its disciplines, such as by excluding certain types of purchases (e.g., for the military) or setting thresholds—higher than the lower limits contained in the Agreement itself—below which the AGP does not apply.

The Materials and Tools of Subsidy Analysis

Basic Data

Ultimately, all subsidy analysis depends on data, and most of these data are collected and provided (not necessarily published) by governments. The usual primary source for expenditure data is government financial statements. Some government departments also helpfully prepare summary tables on expenditure under programs for which they are responsible.

Another source of information is national accounts. While the data in national accounts capture only a subset of budgetary subsidies (no tax expenditures), the background reports for them can be enlightening. Canada, for example, as part of its annual national accounts exercise, publishes the names of companies or individuals receiving C$100,000 or more under a particular program in a given year.

But many forms of subsidies, particularly tax breaks and credit subsidies, do not make it into the official accounts. According to experts at the World Bank, only about a dozen countries regularly report estimates of tax expenditures. The U.S. government publishes two sets of estimates of the tax expenditure of federal tax breaks, but only for tax expenditures worth US$50 million or more a year.

Information on subsidies at more local levels of government, which can be crucial in influencing investments in plants and buildings, is much harder to find, in part because the packages of incentives are unique to each recipient. In the United States, a few states (e.g., Illinois, North Carolina and Minnesota) now make some information on corporate subsidies available on the Web. The European Commission requires that its Member States notify new 'state aid' programs. This information also can now be accessed via the Internet.

Non-governmental organizations and journalists have been successful in some countries in extracting subsidy data from governments that previously had not been made public. So-called Freedom of Information laws have been critical in this regard.

Sectoral Subsidy Accounts

The bulk of what the world knows about the amounts and types of subsidies provided to specific sectors and sub-sectors comes mainly from intergovernmental organizations, such as the OECD.

The values of subsidies, or of support more widely, provided by OECD countries derive mostly from the OECD itself or, in the case of coal (until 2001), from the OECD's sister organization, the International Energy Agency (IEA). Estimates for the rest of the world come mainly from various one-off efforts by analysts working for the World Bank, the International Monetary Fund or one of the United Nations agencies, the IEA and from a few dedicated individuals.

As a result, when researchers combine the aggregate estimates from the sectoral accounts into global estimates of subsidies, they are combining numbers based on different starting assumptions, different estimation methods, different policy coverage and even different time periods. Some normalization could be attained with a more careful approach to aggregation than some have used in past studies, although the level of comparability between these accounts is nowhere near that for corporate financial accounting.

Large Computerized Models and Their Ilk

In recent years, sophisticated economic tools have been brought into service to help understand the effects of subsidies, particularly agricultural subsidies, on trade and welfare at the global level and within individual countries or groups of countries. Most of the large-scale efforts to date—by the World Bank, the OECD, the Institut National de la Recherche Agronomique (INRA), the Carnegie Endowment and a few independent analysts—have involved the use of computerized general equilibrium (CGE) models.

Although the specification of these models differs, they all share the same source of their information on subsidies: the database of the GTAP (Global Trade Analysis Project) consortium. The GTAP database, in turn, draws on data generated by the OECD (relating to its own member countries' farm support) and by WTO Members in their notifications of domestic support.

An important caveat of any recent CGE-based analyses that purport to examine the effects of 'subsidy reform' on trade and welfare is that they consider only a subset of subsidies, namely subsidies to primary agriculture. Because the databases used for these models do not contain information on subsidies to energy, manufacturing, transport or even fisheries, the effects of such subsidies, or their reform, are not analyzed.

Most of the effects of trade reform that these models measure, therefore, are driven by changes in border measures, namely tariffs and tariff-rate quotas. When it is reported that only a small percentage of the benefits of multilateral trade liberalization generally, or from a specific trade deal, would stem from the elimination or reduction of subsidies, it is vital to understand that the outputs of the models largely reflect their inputs, at least as regards subsidies.

International Disciplines on Subsidies

Trade and Subsidy Regulation

Governments may differ in their readiness to use subsidies, but almost all agree that subsidies provided by trading partners are a bad thing if they artificially strengthen the competitiveness of the partner's industry. Countries have been trying to control subsidy-driven competition affecting commerce within their borders for centuries. The U.S. Supreme Court, for example, has on numerous occasions invoked the Commerce Clause of the U.S. Constitution (Article I, Section 8) to strike down subsidies that favor local businesses over competitors from other states.

To deal with subsidization beyond their borders, some countries also set up procedures for keeping out other countries' subsidized goods. This they did initially by either restricting imports or levying additional duties on top of the tariffs normally charged on all imports of the product. Nowadays these so-called countervailing duties, or CVDs, are the only border measures allowed in response to subsidized imports and are supposed to be set at a level equal to the estimated unit (i.e., per weight or volume) subsidy. CVDs are set unilaterally, however, and until the WTO Agreement on Subsidies and Countervailing Measures (ASCM) came into being, providing guidelines, there were few constraints on their use.

The WTO Agreement on Subsidies and Countervailing Measures (ASCM)

The ASCM, which came into force in 1995, established rules not only on how and when CVDs could be applied, but also on what kinds of potentially trade-distorting subsidies would be allowed, and what remedies were available to countries that felt they had been adversely affected by another country's subsidies.

Only two kinds of subsidies are prohibited by the ASCM (Article 2): export subsidies and subsidies contingent upon the use of a domestically produced over imported goods. All other 'specific subsidies,' which are subsidies that benefit only particular companies or industries, are allowed, but actionable. 'Actionable' means that if adverse effects can be demonstrated, the affected country can take one of several actions. If the main concern of the complaining Member (the WTO does not use the word 'country') is displacement of goods sold in its own market as a result of a non-prohibited subsidy, that Member may apply a countervailing duty. If the complaining Member's main concern is displacement of its exports in the subsidizing Member, or in a third country, by a prohibited or actionable subsidy, it may seek remedies through the WTO.

Civil Society and Subsidies

Private Efforts to Control the Abuse of Subsidies

Criticism of subsidy abuse is closely tied to freedom of speech. Rulers have been doling out taxpayer money to favored beneficiaries or wasting it on lavish lifestyles or grandiose projects for millennia. People feel safe in questioning government expenditures only if they know they will

not be put in jail, or worse, for doing so. Domestic criticism of subsidies has traditionally come from four quarters: opposition political parties, liberal economists, non-beneficiary producers and taxpayer organizations. Political parties and producers can be fickle in their opposition to subsidy abuse, however. By contrast, the resources and the organization of the beneficiaries of subsidies tends to grow over time. Short-term bursts of public outrage against particular subsidies are usually ineffectual; the offending programs simply get renamed or cloaked in the latest policy fashion.

Fortunately, a new voice has been added to the chorus of subsidy sceptics: that of environmentalists. As awareness of the harm that subsidies can cause for the environment, and for sustainable development more generally, has increased, so have the number of non-governmental organizations who are taking an interest in subsidies. Among the first to raise alarm bells was the World Resources Institute, over-subsidized energy. Groups such as the Environmental Working Group, which has become a powerful force for the reform of agricultural subsidies in the United States, and the World Wildlife Fund, which has been highly effective in its efforts to prod governments into forging an agreement at the WTO that would sharply reduce global subsidies to fishing, have joined the fray.

Note

1. This chapter is an abridged adaptation of Steenblik, R. (2007). *A Subsidy Primer. Global Subsidies Initiative of the International Institute for Sustainable Development*, Geneva, Switzerland. The original report is available through the IISD at www.iisd.org/gsi/subsidy-primer. The editors would like to thank Ronald Steenblik, Laura Merrill and Ivetta Gerasimchuk (IISD) for their support for our project.

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18

DESIGNING ORGANIZATIONAL TOOLS

Tool Choices as Administrative Reforms

Per Lægreid

Introduction

There is a distinction between reform and change that is important to studies of policy design. While reform is about design, planned, intentional and deliberate choices, change is a broader term that also includes unintended or unplanned changes, such as changes brought about by technological innovations like ICT and digitalization. One can also distinguish between administrative reforms and policy reforms. While policy reforms address the content of public policies in different areas, administrative reforms are more indirect reforms that introduce new organizational tools in the expectation that they eventually will result in different policy outcomes. Thus, administrative reforms are about the organizations that comprise the infrastructure of government and involve the design and deployment of organizational policy tools. This chapter will focus on administrative reform, especially those reforms that involve the use of different kinds of organizational tools and the reasons some are chosen rather than others.

Organizations are one of the main tools of government and have sometimes been referred to as the 'forgotten fundamental' of government activity and policymaking (Salamon, 2002; Hood and Margett, 2007). They are key aspects of government action, giving them the capability and physical ability to act directly, using their own forces. The enabling factor is processing of some desired action or its prevention and the limiting factor is the capacity of the state to do so expeditiously and effectively. A special focus in this effort is how such organizations can and should be designed; this chapter addresses the general wisdom concerning the strength and weaknesses of different organizational tools and the implications of this for policy design.

First, the different organizational tools that have been used in different reforms will be described. Second, their scope and intensity across different countries will be discussed. And third, the effects and implications of different organizational tools are analyzed. What lessons emerge from studies and findings about organizational tools for policymakers' thinking about policy design is the central question addressed in this study.

Administrative Reforms as the Re-Design of Organizational Tools

The first generation of 'modern' administrative reforms and the revisioning and reconfiguration of organizational tools began back in the 1980s. Hood (1991) coined the term 'New Public

Management' to capture the essence of the reforms then taking place in Anglo-Saxon countries, with their emphasis on the disaggregation of large, multi-purpose, public-sector organizations, the introduction of market-based mechanisms and management practices from the private sector and an overall focus on the role of incentives in administrative and policy behavior (Dunleavy, Margetts, Bastow and Tinkler, 2006; Lægreid, 2015). It is, however, a loose and multi-faceted doctrine that encompasses a range of different organizational forms (Hood, 1991). That is, in practice, NPM can be characterized as a 'shopping basket,' meaning that it is a collection of different organizational tools that do not all point in the same direction and that are not all included in all baskets (Pollitt, 1995). The NPM movement nevertheless ascribed to the generic principle that the formal organization of the public and the private sectors should be similar and that managers of public-sector organizations should have enough leeway in their daily work to be able to make efficient use of allocated resources (Dunleavy and Hood, 1994). This led to the adoption of many new organizational forms such as public-private partnerships (PPPs), contracting out and the privatization of many public services, as well as the creation of new kinds of administrative agencies. In all cases, the drive for efficiency was the main concern.

Many tensions arise from this hybrid character of NPM practices, which combined economic organization theory and management theory in an uneasy balance (Aucoin, 1990). There has often been a contradiction, for example, between the centralizing tendencies inherent in contractualism and the devolutionary tendencies of managerialism, for example, which have been well chronicled. By advocating both a decentralization design (let the managers manage) and centralizing design and incentives (make the managers manage), NPM simultaneously and contradictorily prescribed more autonomy and more centralization as key organizational design principles. Thus, when it came to the design of such reforms, it was usually recommended that agencies and autonomous organizations be invoked at the same time as central steering and control through the introduction of performance management tools.

A second generation of administrative and organizational reforms began around 2000, when NPM-based reforms were supplemented by network and broader governance principles, involving a wider range of organizational tools that drew on private as well as non-profit, civil society sectors to aid or provide key public services. By then governments were facing the challenge of too much fragmentation after larger organizational units had been split into smaller, result-based entities through the pursuit of NPM-inspired reforms (Bouckaert, Peters and Verhoest, 2010; Pollitt and Bouckaert, 2011). Gradually, it was recognized that not all problems could be solved via marketization and private-sector management practices, and new designs emerged featuring new kinds of organizational tools.

The argument was that more cooperation and collaboration were needed to solve so-called wicked public policy problems that continued to resist NPM-inspired de-centralization efforts (Head and Alford, 2015). The promotion of network governance (Klijn and Koppenjan, 2015) and New Public Governance (Osborn, 2010) became the order of the day; governments began to take integration, holistic government reforms and whole-of-government solutions more seriously (Christensen and Lægreid, 2007b).

In contrast to NPM-type disaggregation of traditional government organizations, the new design trend was to a greater extent aimed at addressing policy integration through the merger of public sector organizations into bigger units but with a different character than had been the case in the past. Different kinds of network design and partnership tools as well as lead agencies promoting collaboration and co-production were introduced to enhance horizontal and vertical coordination (Lægreid, Rykkja, Sarapuu and Ramnda-Liiv, 2014). The coordination instruments utilized to promote different forms of networked, collaborative 'co-governance' ranged from large scale transboundary tools to small scale experiments. They operated on different policy

areas at both the strategic and operational levels, involving political design and the promotion of private-sector and civil society actors as well as public service delivery. The organizational tools included in such designs ranged from new inter-agency collaboration units, joint planning and working groups, forums, strategic units and review, intergovernmental councils, circuit breaker teams, task forces, lead agency approaches and policy czars, among others.

A *third* generation of reforms now acknowledges this mix of NPM and post-NPM network governance mechanisms and the resulting institutional complexity that characterizes the public sector today. It aims at optimizing the effectiveness of this complex of public, private, state and non-state initiatives and tools. The concept of the Neo-Weberian State (NWS) (Pollitt and Bouckaert, 2011) has been coined to capture how traditional Weberian bureaucracies have now been supplemented by new organizational tools such as performance management and user participation. NWS shares a more positive attitude towards state-based tools and a less positive attitude towards private sector models, underlining the role of representative democracy and administrative law in coordinating diverse actors and initiatives. Compared to traditional bureaucracies, organizational tools have been re-designed towards meeting citizens' needs, citizens' participation, performance and results through the professionalization of public service delivery, including by non-governmental actors. To achieve this, governments have once again tended to favor centralized solutions (Dahlstrøm, Peters and Pierre, 2011). However, NWS initiatives encompass a renewed demand for designs promoting integration, state capacity building and, somewhat paradoxically, many classical Weberian public administration principles of accountability and responsibility.

One complication of this pattern of contemporary reforms is that there is often only a loose coupling between the broad models of reforms and the specific organizational tools now in place in many jurisdictions, which are linked to several earlier models and administrative fashions and credos (Pollitt and Bouckaert 2017). Even though particular organizational tools do often belong to broader models, each organizational tool type is not necessary exclusively associated with one administrative model alone. Market-type mechanisms, for example, such as contracting out services, are the most common tools linked to NPM, but contracting out and related tools, such as public-private partnerships, can also be linked to, and found in, network governance reforms. Performance management and executive agencies are other organizational tools connected to NPM, but they can also be a key part of a modernizing NWS approach. So, there is not necessary a one-to-one relationship between preferences, uses of specific tools and the general models of reform articulated above.

Adding to this complexity is the observation that one reform model is not simply swept away and replaced holus-bolus by another. Instead, an institutional layering approach can often be seen to be present (Streeck and Thelen, 2005), emphasizing that an institutional ensemble of organizational tools is being designed and re-designed gradually and over time in a heavily context-dependent fashion. The result on the ground in many jurisdictions is a more complex and hybrid governmental system featuring a wide repertoire of organizational tools utilized for different purposes at different times.

Ambiguous Effects and Context Matters

Different organizational forms matter and affect the way public organizations operate and work in practice. But usually, there is no one-to-one relationship between organizational design and performance; one lesson is that the effects of organizational tools are context-dependent rather than general. It is necessary to find out how the different organizational tools are used in different countries (Hammerschmid, Van de Walle, Andrews and Bezes, 2016) and to specify and examine under which conditions the market and management hypothesis will be valid.

In this regard, it is important to note that while there have been many administrative reforms and derived organizational tool designs, little knowledge exists about their effects (Hammerschmid et al., 2016; Pollitt and Dan, 2013). A main hypothesis has often been that an increased market orientation and the adoption of management tools leads to increased efficiency, without causing negative side effects for other goals and concerns. However, it is still necessary to treat this as a hypothesis to be studied empirically, not as established fact or evidence-based knowledge (Lægreid, 2017).

That is, while it may be correct under specific conditions, it cannot be said to apply everywhere, in all policy areas and at all times. Hard evidence of the effectiveness of organizational forms and reliable studies on the effects of different organizational tools are often lacking. Often, strategies, plans and selective success stories are the focus of attention rather than systematic analysis of results (Pollitt and Bouckaert, 2017). Reorganization, for example, is one of the most popular organizational procedural tools deployed by governments, but also one of the least understood (Peters, 1988). Effects of reorganizations are often assumed or promised, but there are few systematic and reliable studies of whether these results actually happen, so hard evidence is often lacking to guide design practice. Means-end knowledge and the ability to engage in *ex ante* rational calculation of the impacts of different organizational tools needed to evaluate alternative design proposals is rather weak among reform agents.

There is thus a need for an extended effects concept in organizational tool design that not only focuses on economization or efficiency but also takes into account effects on democracy and effects on governance in a more fragmented, complex public sector. For example, the transition from an integrated multi-purpose organization model to a single-purpose one, which commonly happens with privatization, for instance, will not merely affect efficiency. Such a change will also have consequences for coordination and prioritizing between diverse concerns such as service quality and political control.

When addressing effects and implications, there is a need to go beyond a narrow focus on efficiency and also address the broader concept of performance, including the effects on political steering and control, power relations, accountability, trust and legitimacy. The dynamic relationship between political and administrative actors in a democratic context thus has to be taken into consideration in organizational tool design, although this is rarely done explicitly (March and Olsen, 1989).

Especially lacking are empirical studies of changes in the role of government and citizens as a result of administrative reforms and accompanying organizational tool changes (Van de Walle and Hammerschmid, 2011). In most democratic systems, values such as impartiality, predictability, rule of law, political loyalty, participation, responsiveness, professional competence and equity are also important elements of performance (Christensen and Lægreid, 2007a). And not only effects on main goals but also side effects and indirect dysfunctions have to be taken into account (Hesse, Hood and Peters, 2003).

When it comes to determining and specifying such effects and their implications, the focus of many studies has often been on processes and public decision-making behavior. Generally, scholarly attention has moved somewhat from descriptive mapping and *a priori* critiques to the analyses of paradoxes and unintended side effects of NPM-reforms (Hood and Peters, 2004) where 'soft theory' meets 'hard cases' (Hesse et al., 2003). Generally, there has been a trend towards collecting more systematical data on how NPM works in practice (Hood, 2005). But less emphasis has been placed on better understanding the effects of these alterations on outcomes.

One concern is the poor empirical support for the assumed or expected effects of the different administrative reforms and organizational tools. The paradox is that many such reforms build their legitimacy on the assumption that they will produce effects, such as more efficiency and

effectiveness and a more economical use of resources. Yet, there is little systematic, reliable or generalized knowledge about whether or not these kinds of effects actually occur. As a result, the jury is still out on the degree to which many administrative reforms work in practice and hence which design is best in which circumstance. Evidence of efficiency gains has been incomplete, and there is little hard evidence of whether the main goal of cost reduction and improved efficiency has actually been realized.

An important implication of this for organizational design is that one cannot simply just graft private-sector management and organizational tools onto public-sector organizations and immediately expect successful implementation and results from this new design. Policymakers are well advised not to simply copy new reform solutions from other jurisdictions but instead to carefully adapt them to local contexts.

Existing claims of holistic or generic models have other clear limitations. A study by Pollitt and Dan (2013) of 519 publications examined effects of NPM reforms in Europe on output and outcome concludes that the knowledge on effects is fragmented. Most of the studies address effects on activities and processes. A minority focus on output, and very few examine outcome. The identified results show a mixed pattern. A considerable number of studies cannot identify significant changes, and some even report negative results. Pollitt and Dan (2013) link the big variations in effects to contextual features. For example, whether the time frame is short or long; whether the scope is narrow, addressing single organizations, or more broadly linked to sectors or countries and to the directions of the reforms; and whether they are enabling, neutral or constraining existing arrangements. A weakness of this study is that it might be somewhat unclear what organizational tools are included as independent variables and to what degree political effects and effects on the content of the decision-making are included.

Nevertheless, it is clear that the considerable variation in the design of NPM reforms between countries, tasks, sectors and administrative levels, for example, means adoptions in different places have had different consequences. The success of administrative reforms depends on the degree of autonomy, politicization and involvement of key actors in reform processes. In the Nordic countries, for instance, the autonomy of central bureaucracy is high, the degree of politicization is low and the involvement of public employees in the reform process is high. These features tended to enhance the perceived positive effects of reforms and management measures (Greve, Lægreid and Rykkja, 2016; Hammerschmid et al., 2016). In other countries, such as those in Southern Europe, administrative reforms hardly ever seem to have significant effects (Kickert, 2011). The implication is that discussions of the effects of reform must strive for exceedingly precise terminology and must not be conducted at a general level.

In sum, it is hard to say unequivocally what the effects of shifts in the use of many organizational tools have been, and what claims have been made are often disputed and uncertain. One reason for this is that the reform movements themselves have made before and after evaluations difficult. And, as has been stressed above, reliable cross-national and longitudinal data are often missing. One way to measure efficiency gains, for example, is to look at the major macro-economic performance of a country. However, it is not easy to establish whether improvements in performance are the result of reforms and tools changes, because there are many other factors that play a role in such performance. Nevertheless, a few studies have demonstrated a favorable macro-economic effect of NPM (Pollitt and Bouckaert, 2017).

A recent significant contribution to the study of effects of reforms is the book *A Government That Works Better and Costs Less?* by Hood and Dixon (2015). It goes beyond the typical use of perceived effects and applies objective time series data about effects. The main hypothesis is that NPM reforms would enhance the quality and reduce the costs of public administration. The authors address the paradox that the NPM movement, which was legitimized by a performance

argument, in practice was often ideologically driven, pressing ahead with reforms with little regard for confirmation of their efficacy. The UK was one of the first countries to adopt NPM reforms and did so more radically than many other countries. It is therefore a good test case of this kind of reform. If clear cost reductions and quality improvements are to be found anywhere, they ought to be found in the UK. This study on cost-cutting effects, however, did not find many convincing positive results. The main finding is that after 30 years of NPM, the UK does not have 'a government that works better and costs less,' as promised by the reform agents. In fact, the government now works slightly worse with respect to fairness and costs a bit more than before. The running costs are higher and there are more complaints. Overall, the findings support NPM skeptics about the utility of NPM-type organizational tools, but they do not confirm the most radical expectations of either side. Trust in government has not collapsed, for example.

Similarly, Dunleavy and Carrera (2013) find that strategies such as contracting out, privatization and changing the borders between public and private sector has only weak positive effects on the long term productivity in the public sector. There might be some improvement in technical efficiency through agencification, performance management, competition, public-private partnerships or consumerism, but much remains unknown about effects on allocative and distributive efficiency (Andrew, 2011). There is weak knowledge about the effects of increased technical efficiency on resource allocation that reflects the users' preferences or on processes that distribute services to users who are in need.

Trade-offs are also common in tool change or substitutions. Privatization and contracting out, for example, might have some positive efficiency effects in the short run in some policy areas, but there might also be negative side effects on equity (Hodge, 2000; Boyne, Farrell, Law, Powell and Walker, 2003).

Comparative studies often claim that competition increases economic benefits: savings on costs, more efficient production and more flexible and user-friendly services. Yet these studies often have a narrow economic orientation and do not take into account negative side effects in the form of increased social problems, e.g., unemployment, lower pay, short-time contracts or work-environment problems. Contracting out, for example, can have a positive effect on cost efficiency in some but not all cases. Based on results of many studies in different countries, Graeme Hodge (2000) concluded that contracting out might give a cost reduction of 6–12 percent. The savings, however, are often linked more closely to increased competition than to transferring the tasks to private providers, and there is often great variation depending on what tasks are addressed. It is normally easier to get cost savings for services in which it is rather easy to measure results, such as garbage collection, than for services whose outcomes are more difficult to measure, such as caring and welfare services. The efficiency gains also vary according to tasks.

In sum, the effects on efficiency from the use of such tools are usually less than reform advocates predicted. This comes partly from over-sell but also because transaction costs, as well as administration and operational costs of the new arrangements, may not have been taken into consideration, or were under-evaluated. Studies from the U.K. by George A. Boyne et al. (2003) show that through reforms in the health sector and within public housing from the 1980s and onwards, structural devolution and increased competition have led to increased efficiency, in any case in the short term, but that the situation is more uncertain with the use of such tools within the educational sector. And responsiveness to users has improved within housing and educational sectors but is more uncertain in the health sector.

In the three sectors studied by Boyne, there are also clear indications of a reduction in equity. It looks as though the improved efficiency and responsiveness that occurred through the use of new tools happened at the expense of equal treatment. This is also confirmed in a Swedish study of schools and hospitals where, in particular, the free choice of schools led to social segregation

and increased differences between resourceful users who were able to make use of the new possibilities (Blomqvist and Rothstein, 2000). Contrariwise, there was a positive effect for democracy in the form of increased freedom in choice of services such as schools and hospitals. However, while freely choosing one's hospital did not create greater differences in the health sector, neither did it create more efficient solutions. Danish studies on increased competition shows that being able to freely choose a school created differences, not better schools (Andersen and Serritzlew, 2007). One clear conclusion to be drawn from these studies, notwithstanding data limits and other factors cited above, is that the designs of various market-models vary considerably between countries, tasks, sectors and administrative levels.

The same is true of PPPs, which have been a popular organizational tool deployed in many countries in recent years as a replacement for more traditional public-sector investment, especially in infrastructure. Again, studies show that their performance remains contested, and the international results of PPP are mixed (Hodge and Greve, 2016). Governments have often been found to stress the success of infrastructure PPP on the basis of political and governance strengths rather than on business performance linked to project delivery or value for money. Compared to early optimistic promises, there is now a more nuanced and balanced view of what PPP can achieve. Modern PPPs are more tied to seeking economic growth and political success than demonstrating one best way to deliver efficient infrastructure (Hodge, Greve and Boardman, 2017). The implication, again, is that detailed specification of the PPP arrangements and careful learning is required in the international PPP field rather than rote application of designs from other jurisdictions or sectors (Boardman, Greve and Hodge, 2015).

Studies of the effects of agencification are also similarly inconclusive (James and van Thiel, 2011; Lægreid and Verhoest, 2010), and the expected positive effects of semi-autonomous agencies are difficult to find (Overman, 2016). What we can see, however, is that employees in the central agencies tend to pay less attention to signals from their political executives and more attention to commercialization, to professional concerns and also to user preferences than their colleagues in the ministries (Egeberg, 2012). One claim of agencification was that it would strengthen political control, but the bulk of comparative studies of the effects of agencification seem to stress that the control of the political executive has decreased (Christensen and Lægreid, 2001, 2007a; Pollitt and Bouckaert, 2017). The demand for independent, apolitical bodies did not work as expected, and calls for democratic accountability have become stronger. The same can be said about their effects on citizens' satisfaction and trust, which is a very complex issue in itself (van de Walle, 2011). Autonomy in itself has been found to be insufficient to ensure good performance of agencies, and extensive agencification in systems with weak coordination capacity may endanger system effectiveness. A main lesson, again, with this tool is that agency models should not be copied straightforwardly but should be carefully studied and adapted to local contexts (Verhoest, van Thiel, Bouckaert and Lægreid, 2012).

Studies have also found performance management arrangements to work better for 'tame' or well-known issues than for 'wicked' or complex issues whose causes and solutions are less well known. And they have worked better for technical issues than for politically salient ones. There also seem to be quite a few perverse gaming effects (Hood, 2006); dysfunctions and negative side effects are rather common. There have been many critical reviews of the failure of many performance-related pay systems in Western countries (OECD, 2004), for example, and a lack of trust in management, at least in part due to this failure, is one of the most serious obstacles to the development of performance related pay systems. Meritocratic recruitment to the public sector and separation of the careers of politicians and bureaucrats is a precondition for getting a performance based pay system to work and is heavily context dependent (Dahlstrøm and Lapuente, 2017).

A fundamental dilemma for many organizational reforms is the tension between autonomy and control. Organizations should have enough freedom to run in an efficient way, yet not be so free that superior levels of leadership lose power and control. Organizations should have greater freedom in how they use allocated resources so that they can function efficiently, but the price for increased autonomy can also mean a more rigid performance management system. One wants to achieve more freedom and greater control simultaneously. More rigid, formalized and comprehensive systems—with performance indicators, reporting and evaluation—strengthen the top echelon's control. Simultaneously, the public organizations are structurally devolved through changes in forms of affiliation and by giving managers more discretion in using allocated resources. Whether or not this strengthens political control and leads to better political steering is an open question. Some will claim that agencification and performance management tools lead to increased autonomy for non-ministerial organizations, and a transfer of power and influence to state-owned companies and autonomous central agencies. Others will claim that the performance-indicator trend is first and foremost a tool for improving top-level administrative control.

The likelihood is in any case great that new organizational forms will lead to changes in how public organizations are controlled, which can cause many difficulties and have to be very carefully designed and implemented. The traditional, informal, internal, collegial and trust-based forms of control are waning, and the more formal, external, professional and distrust-based forms of control are waxing. Using performance indicators entails that a hierarchically based inspection of whether or not regulations are followed will twist from being a control of procedures and compliance to a control of performance and results. Moreover, elements of control through increased competition and market-oriented organizational forms are growing.

If we move to more focused and disaggregated studies of organizational tools in specific localizations and organizations, there are, however, several examples of positive results; introduction of performance management by the UK government, for instance, has reduced waiting times in hospitals (Kelman and Friedman, 2009). Work done on Total Quality Management and performance related pay has revealed suggestive regularities (Pollitt, 2011a). These studies tend to show that it may be possible to identify certain contextual features that significantly affect the possibility for sucessful implementtion. Thus, there might be patterns of combined tools and contexts, which might contribute to the understanding of under what circumstances particular types of result are more or less likely. In some cases, a tool might be fairly robust, but in other cases a tool is likely to work well only in rare and highly favorable conditions. Performance related pay might fall into this category.

The knowledge about the actual performance of a new network and partnership based coordination practice is patchy; the effects are generally perceived to be more positive in terms of inputs and processes and more uncertain with regard to the outputs and outcomes (Lægreid et al., 2014). Network tools tend to represent complicated trade-offs rather than clear-cut success or failure cases. Overcoming departmental conflicts and interests and creating new and shared cultural identities is very challenging, especially in decentralized settings. A general problem observed across several cases is that many coordinating arrangements lack authority and resources as well as powerful steering instruments. Network and partnership arrangements put challenges on accountability relations and consequently the legitimacy of decision-making and institutions. Generally, the horizontal inter-organizational and collegial coordinating arrangements seem to supplement rather than replace traditional hierarchical coordination in the European states.

Design Implications

Pollitt and Bouckaert (2011) underline that there are multiple difficulties in assessing the results of administrative reforms in general, with government effectiveness especially difficult to evaluate. Generally there is need for more long-term evidence of the effects of different (Hood, 2005) administrative reforms. Some of the most significant effects may actually have been in the way we talk about public-sector organizations. The reforms have produced a new discourse and reform climate, changing attitudes, activities and procedures more than outcomes. The general conclusion reached by many studies is that major reforms are often launched with little attention to evaluation; the paradox is that "if 'results' are defined in a narrow way as scientific tested data describing the final outcome of changes, then the international management reform movement has not needed results to fuel its onward march" (Pollitt and Bouckaert, 2017, p 162).

Taking this into account, Egeberg (2012) has developed a design model in which the criteria for selecting specific organizational tools is that they, in addition to being relevant for understanding variations in decision-making behavior, must also be manipulable and operational. Egeberg emphasizes three main groups of explanatory factors: formal organizational structure, organizational locus and organizational demography. In order to carry out a prescriptive analysis of what can be done to affect decision-making, we need to have insight into connections between organizational tools and their effects, based on empirical research. Empirical studies have shown that various formal structures and organizational tools have consequences for decision-making behavior in organizations, but also that physical structures and compositions of personnel matter.

Quite clear connections between formal structures and decision-making behavior have been shown—for example, that organizational mergers increase the potential for conflict, while splitting organizations helps transfer conflicts to higher organizational levels. Moreover, changes in forms of affiliation, from civil service organizations to state-owned companies, although weakening the possibilities for political control, will strengthen commercial considerations. Clear effects have also been shown for personnel composition: An organization's profession-based composition will influence which problems will receive attention, which cases will be prioritized and which solutions will be proposed. An organization dominated by lawyers will have different perceptions of values, situations and social identities to an organization dominated by economists.

Organizational tools have also been shown to influence decision-making behavior. For example, if ministerial departments are co-located within the same building or if they are in different locations within the capital might affect decision-making, and the degree of coordination. The provable connections indicate a direction for development more than a precise statement about the strength or extent of changes in decisional content when formal structures, physical structures and personnel compositions change. There is no one-to-one correspondence between organizational structure and effects. Organizational tools seem to be rough and robust categories that allow variation in actual behavior and patterns of action, depending on their context and which situational factors the organizations face. Even so, we can say something about likely directions of correspondence and suggest their strengths.

Conclusion: Difficulties of Organizational Tools' Design, Selection and Use

Although NPM represents a global change paradigm, the extent of convergence of many administrations on NPM principles is highly contested (Pollitt, 2001). Undoubtedly, however, NPM has left its mark. Many of the organizational tools referred to when NPM was launched in the 1980s have moved from fashion to mainstream, and this has led to major changes in the public

sector in many countries (Hood, 2011; Pollitt and Bouckaert, 2017). Yet it has *not* become the predominant public management paradigm. Hierarchical bureaucracies have not been replaced with NPM features. Rather, the spread of administrative reforms is a complex process, with each country following its own reform trajectory within a broader framework (Bouckaert et al., 2010).

Thus, there is no clear convergence towards one single organizational form or one set of organizational tools (Pollitt and Bouckaert, 2017), and contemporary organizational tool designs reflect this. In practice, we face a complex combination of different reform trends (Christensen and Lægreid, 2007b). NPM ideas have been implemented to different degrees, at different paces and with differing emphases in different countries.

There are many different tools on the plate pointing in different directions in a hybrid and mixed ordered administrative apparatus. Reform agents often pick and choose partly competing reform elements. A general finding is that the degree of variation between countries and also between policy areas increases when we move away from the world of ideas, talk and policy programs and look at specific decisions and organizational tools, and even more so when we consider the implementation and impact of the different tools (Pollitt, 2001).

Some major reform ideas have spread around the world quite easily, while the more specific organizational tools have shown patterns of divergence. One main reason for this may be national variations in polity features, different political and administrative cultures and different environments. Although different countries present their reforms in similar terms and support some of the same general administrative doctrines, closer scrutiny reveals considerable variation (Christensen and Lægreid, 2012). Pollitt and Bouckaert (2011) distinguish between two main models. First, the fast pace NPM marketizers—Australia, New Zealand and the UK. The second group are slow-moving systems consisting of the Continental European and Scandinavian modernizers. Citizen orientation and participation are more characteristic of the Northern countries than of Mediterranean countries. There is a great North-South divide in Europe when it comes to administrative reforms and use of organizational tools (Greve et al., 2016; Hammerschmid et al., 2016; Ongaro, 2009).

The combination of factors furthering NPM reforms, for example, exists in Anglo-Saxon countries where there is a strong executive, cultural compatibility with economistic claims and expectations and often strong environmental pressure for NPM reform from companies and civil society (Christensen and Lægreid, 2001). At the other extreme, weaker control of processes, cultural incompatibility and low environmental pressure in many countries has led to reforms that are less NPM-oriented in many jurisdictions. The Nordic countries, for example, did not privatize as much as countries like the UK, although they did introduce some contracting out and privatization of state-owned enterprises. Pollitt and Bouckaert (2011) dubbed the Nordic countries 'modernizers' in contrast to 'maintainers,' 'minimizers' and 'marketizers.' The Nordic countries were choosing their own pragmatic and more middle-of-the-road solutions and rejected the more radical marketization experiments. They were mainly concerned with developing practical managerial organizational tools such as performance management systems.

There are also differences between administrative levels. The United States and Germany have been more reluctant to introduce NPM reforms at the federal level than at lower administrative levels. Another observation is that the more politically important tasks are, the less NPM organizational forms tend to be used, because the political leadership will want to have hands-on political control. There are also variations between policy areas and over time. It seems to be easier to implement market and management tools in more technical policy areas than in the 'softer' welfare state areas. In Europe, organizational tools such as contracting out, privatization and agencification have recent years become less important, often supplemented by reforms

based on e-government, transparency, citizens' engagement and coordination (Greve et al., 2016; Hammerschmid et al., 2016). Management-related tools such as performance management and treating citizens as customers, however, remained important.

Thus, there is no consistent movement towards a new isomorphic model of organizational tool deployment. Variations in reform practice from one country to another and between policy areas are the rule rather than the exception. Different countries face different contexts, risks and problems and start out with different values and norms. They have different starting points, are at different stages of reform and face different external and internal constraints. Most governments still share some main elements of the traditional system of public administration, but some strong common modernization trends have emerged in public services across groups of countries. One of these trends has been a reduction in the differences between the public and private sectors.

Reform agents often face the problem of over-selling, because to get a reform accepted they often have to promise more than they can deliver. They are also puzzled by the implementation problem versus the model problem. For example, managerialism is not able to offer a solution to problems of fiscal balance—the sums that can be saved through greater efficiencies are not large enough (Pollitt, 2016). When the results fail to materialize, the answer is often that one has to try harder, to take a more sophisticated approach, to train political and administrative executives better or to replace them. Another strategy is to ask if there is something wrong with the model—maybe the model should be adjusted to make it fit administrative reality better.

Another concern is the efficiency problem versus the expectation problem. Often dissatisfaction with public sector organizations has more to do with unrealistically high expectations among users, clients and citizens about what public sector organizations are capable of rather than with low efficiency. So maybe we need a policy design not only to increase efficiency but also to lower expectation. A good administrative apparatus requires not only governance capacity but also governance legitimacy (Christensen, Lægreid and Rykkja, 2016).

We also have to focus on the relationship between efficiency and other important aspects of performance in the public sector, such as fairness, impartiality and predictability. There is a need for more and better studies able to analyze the dynamics of structural reforms and affiliated organizational tools using a broad concept of performance not only linked to economy and efficiency but also to the broader democratic implications for power relations, trust and legitimacy. An implication is that public sector organizations cannot just copy private sector management and organizational tools and expect successful implementation and results. After all, public-sector organizations differ significantly from private-sector organizations in that they are more multifunctional, they have political executives as leaders and many of them do not operate in a market (Christensen, Lægreid, Roness and Røvik, 2007). So, the policy advice is that administrative reforms need to be adapted to local contexts, implying that holistic models have clear limitations.

One lesson is that most governments fail to learn sufficiently from previous administrative reforms, the reasons being that their impacts are often ambiguous. Alleged successes often have more influence than elements of reform failure. Therefore, there are a lot of ambiguities in learning from experiences of administrative reforms and different organizational tools.

Organizational tool design studies have to go beyond formal-legal categories and study the actual practice of 'living' organizations. Single factor explanations face considerable problems when their claims are confronted with empirical data. What we see in diverse empirical realities is in contrast to the ideas of 'generic' public management, 'global recipes' and simple models of administrative reforms and organizational tools. Thus, more meso-level theories taking the institutional context into consideration is needed, implying that identification of generic models or tools that work well in all places, times and circumstances is unrealistic. Rather than searching for panaceas, we have to aim for more limited and conditional generalizations or stick to a shopping

basket of tools with insights that might have some transferability from one place to another (Pollitt and Bouckaert, 2017). The art of reform lies in their adaptation to fit local contexts (Christensen and Lægreid 2013). Applying standardized tools such as PPPs, performance management and agencification in a tick-box manner can be counterproductive (Pollitt, 2011b).

There is no 'one best way,' and the idea that there is one set of organizational tools that can be applied everywhere is suspect. The lesson is that a careful diagnosis of the local situation is needed, rather than introducing standardized organizational tools. Sector and task differences matter. A market-type mechanism may work quite well when applied to garbage collection but not when applied to hospital care. One also has to take into consideration that designing organizational tools is not only a managerial issue but also a political issue, implying that politics matter and active support from political executives might be needed when introducing organizational tools that are political contested. Designing organizational tools is not only a technical exercise. There are normally vested interests and different stakeholders involved. Successful introduction of different organizational tools is normally an iterative exercise that takes time. Reformers must adapt and learn from experience, implying a local presence over time, not a one-shot 'quick fix.' Organizational tools do work sometimes and under specific conditions. But rather than an idealistic and overoptimistic approach, a more humble and modest path might be more realistic.

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19

DIGITAL TOOLS FOR RAPID POLICY DESIGN

Justin Longo

Introduction

Policy design represents a best attempt to understand a policy system and all the variables (including people) within it and seeks to modify that system so that desired outcomes are achieved. With a holistic and long timescale view, the network effects of changes are anticipated, or at least the design will be adaptable such that unanticipated effects are responded to with agility. This chapter attempts to link the policy design movement with the literature on design thinking, especially its promotion of rapid prototyping, and assess how continuing advances in digital technology can lead to a concept I call *rapid policy design*.

Perhaps the *sine qua non* of design thinking is the prototype, that early stage representation of a far-off idea, presented in tangible form, that allows for a visceral reaction from the potential user. Long a staple of the design movement, in the digital realm the prototype has emerged as standard operating procedure, the form in which an idea is first communicated and subsequently refined. Few designers would pitch an app or website by describing it verbally, waiving their hands at invisible objects or writing about it in staid prose for very long before producing even a primitive prototype. Contemporary digital tools allow for digital prototypes to be drawn up quickly and easily. When the anticipated output of the design process is itself a digital product—e.g., a website or app—or is a physical object that can be represented digitally—e.g., a computer-aided design (CAD) representation of a car or house—what better way to communicate a digital objective than digitally? Mock up a prototype website or app storyboard and let the reader (user) experience the potential for themselves. Show what an envisioned product might look like using three-dimensional computer graphics, or even print a physical representation of that digital file on a 3D printer. Let the user interact with the prototype, providing feedback as part of an iterative process moving from idea to finished product.

This is the inflection point we are at with policy design and digital tools. We have the ability to present to the potential user, as an input into a policy design engagement process, a policy prototype of clarity and impact in the lab that can serve to elicit a response much more powerfully than a gazetted 'proposed rulemaking.' Or we can present to a sample of citizens a new policy tool (or minor modification of an existing one), measuring an actual behavioral response from the field that separates the effect of the tool from other extraneous variable. Yet we remain embedded in an analogue world of briefing notes, issue papers, discussion documents and reports, plodding

towards a closely guarded confidential final form of the policy intervention, followed—after a discrete interval—by a summative evaluation. And we follow this traditional path when we have within our grasp the possibilities of the rapid digital prototype.

This chapter attempts to convey this possibility, to imagine a future of policy design based on the digital prototype where a policy design is deployed with micro-experimental reach, while the reaction of users is precisely gauged and fed into continual iterative improvement of the policy intervention, bringing us closer to the stated policy objective. Using the very same digital platforms to assess that reaction that are used to deliver the policy tools, policymakers can deploy policy prototypes experimentally, at small scale, using evidence from the field to improve those policy interventions and make progress towards policy goals. In the next section, the model of design thinking and rapid prototyping that is emblematic of the digital design industry is mapped onto the policy design environment. From this, a revised approach of rapid policy design that takes advantage of new digital technologies is described. This is complemented by a description of emergent examples and potential applications, with some limitations and caveats identified in conclusion.

Design for Policy

Wicked problems. Doing more with less. The death of expertise. The legitimacy crisis. While the academic field of public policy analysis has been beset for some time by "ambiguity, relativism, and self-doubt" (Lawlor, 1996, p. 111), the practice of public administration also suffers from a seemingly perfect storm of policy complexity, limited capacity and declining social status and trust (Kramer, 1999). While a favorite refrain for many years has become 'the increasing complexity of policy problems,' this has not generated much sympathy on the part of political masters or the citizenry. The inability to solve complex problems has (amongst other factors) diminished the public's trust in government, further exacerbating a decline in perceived legitimacy of government. Political leaders have fared equally badly, with trust in political institutions at all-time lows (Doherty et al., 2015).

Despite these trends, governments are expected to find more effective and efficient ways to deliver public services, solve public problems and produce good social outcomes. Design has emerged as an approach to deal with problem complexity and explore innovative solutions to public sector policy and service challenges (Bason, 2010). Design here is understood as the deliberate act of intentionally creating a product or service with the aim of improving people's experience with a task or solving a problem, where an existing situation is converted into a preferred solution (Simon, 1970). Derived from the field of design, 'design thinking' is a structured method for design, centered on problem identification (based on the unmet needs, challenges and experience of users), analysis (or ideation, where multidisciplinary perspectives are brought together to develop solutions) and implementation, where ideas for products and services are tested, iterated and refined (often using prototypes, which reveal unforeseen implementation challenges) (Brown and Wyatt, 2010). Design thinking is an approach to generating solutions to complex problems and challenges that focuses on ambiguity and unanticipated outcomes. As the consequences of policy actions are difficult to predict and unanticipated consequences are likely, design thinking encourages policymakers to proceed incrementally (Hobday et al., 2012).

Policy design, also derived from the field of design, represents a renewed emphasis in public policy studies on analyzing and improving the sets of policy tools adopted by governments aimed at correcting policy problems (Howlett, 2011). It involves the deliberate linking of policy instruments (e.g., subsidies, taxes, regulations, nudges, markets, public information, social norms, architecture, citizen services and citizen and stakeholder engagement) with the tools to achieve

them and is based on two foundational premises: complex problems require innovative solutions, and those solutions cannot be known *a priori*. The emphasis in policy design is on what policy tools can be used in particular contexts to produce desired outcomes and how multiple tool mixes evolve over time to address complex, multi-dimensional problems, acknowledging that transforming policy intention into effect is complex and often fails due to poor designs (Howlett et al., 2015).

Design thinking and policy analysis share obvious parallels, with notable similarities between design thinking processes (i.e., define, research, ideate, prototype, choose, implement and learn, e.g., Simon, 1970) and the policy formation process (i.e., problem identification, analysis, decision-making, implementation, evaluation, e.g., May and Wildavsky, 1978). Both involve deliberate processes (Howlett and Ramesh, 2003), a focus on solutions to improve social conditions (Lasswell, 1951) and—specifically in the case of public policy analysis, but increasingly in design thinking (Bason, 2010, 2016)—an orientation towards "the public and its problems" (Dewey, 1927, p. 1). Where design thinking differs from policy analysis is in its suspension of disbelief about the uncertainty of the derived solution. Policy analysis assumes that a good solution can be derived from a good process of defining a problem, developing a solution and making a decision. Design thinking, alternatively, assumes that the goodness of a solution can't be known until the end user experiences it.

A design approach to understanding public problems is also distinct from the traditional policy analysis approach through its emphasis on tools such as user-centered inquiry and rapid prototyping. The essence of design thinking starts from the user's perspective and experience, to understand their context, preferences, needs and behaviors, to focus on the core problem to be solved and to approach the design of a good or service to allow the user to best extract value for themselves. Various methods for better understanding the user include using stories and user journeys, videos and picture boards to map the real experience of the user; 'user-led design' puts control in the hands of the user and places the use-case in real-life settings (Mulgan, 2014).

Prototyping is central to design thinking as a practically focused and tangible mechanism for soliciting feedback from users, for undertaking realistic experiments and for learning from *in situ* experience. Early prototyping allows for the widespread solicitation of feedback and enables innovation solutions that are ultimately faster to implement. Design thinking encourages prototyping as a quick and inexpensive part of the creative process and not just as a means of validating finished products (Brown and Wyatt, 2010). Visualization is a type of prototyping, where analysis and proposals are translated from data and narrative into visual forms to aid in communication (Lindquist, 2015). When used in user engagement, visualization of problems and potential solutions "can have a surprising impact in cultures dominated by blocks of prose and charts" (Mulgan, 2014, p. 4). This claim is echoed in the growing use and effectiveness of visualization techniques in domains such as land use planning (Lovett et al., 2015) and design charrettes (Condon, 2012).

A quasi reverse-prototyping approach exists in the use of 'desire paths,' where user behavior is observed without the user being unaware of their place in the design process. Desire paths in landscape architecture are revealed when pedestrians follow a desired or natural route between points rather than conforming to a predetermined path (most prominently revealed after snowfall, but also where grassed areas are worn down through repeated traffic), providing "an unbiased indication of how an object or environment is actually used by people" (Lidwell et al., 2010, p. 76). As a small number of users spontaneously create an informal new trail, the path can become self-reinforcing as others mimic the displayed efficiency advantage and follow it, thus entrenching it or prompting a permanent installation. Non-landscape examples might include the absence of patina on a staircase railing or a slight indentation on a door where subsequent users press on the

same point repeatedly over time. From a non-design perspective, desire paths are frustrating for infrastructure managers and lead to efforts to curtail them through barriers and signage. But a design approach would see desire paths as an indication of the user's perspective and a framework for installing official pathways. The use of desire paths in architecture and planning has emerged in the digital realm with the concept of "paving the cowpaths" (Crumlish and Malone, 2009, p. 18), meaning that software designers should look where processes have been formed by behavior and then formalize them rather than trying to shape behavior with a new path (the #hashtag on Twitter is one example; Stevens, 2017).

Design methods have been increasingly deployed in public service delivery and policy development settings in recent years, with objectives that include advancing public and social innovation, improving the user experience, increasing efficiency and developing creative solutions to complex public problems. Private sector consultancies such as IDEO, Thinkpublic and Engine Service Design have added external capacity to government efforts and prompted capacity-building within governments. Public sector organizations have also been created, infiltrating design thinking into governments, including Mindlab in Denmark, SITRA and the Helsinki Design Lab in Finland, Region 27 in France, the MaRS Solutions Lab in Canada and in the UK with NESTA, the Design Commission and the All-Parliamentary Design and Innovation Group (Bason and Schneider, 2014).

While the concept of design for policy has been around for some time (Simon, 1970), the majority of design being done in regard to public services does not involve designers or (many) design methods. The latter remain consigned to fairly marginal pilots and experiments, and there are still few signs of public servants building up the capacities needed to be effective practitioners of design:

> the strong push over the last decade has also prompted some criticisms, often in reaction to over-inflated claims. There is very little hard evidence on what works—and some resistance to formal evaluations let alone more rigorous methods such as randomised control trials.
>
> *(Mulgan, 2014, p. 1)*

Towards Rapid Policy Design in the Digital Era

Policy formulation and decisions should be based on rigorous analysis and the best available evidence, rather than anecdote, belief or inaccurate or partial data (Quade, 1975). From that premise, policy analysts are tasked with providing scope and precision to the definition of policy problems, collecting and analyzing evidence, supporting policy formulation and decision-making, implementing those decisions and evaluating the effectiveness of policy interventions. Decision-makers must deal with issue complexity and uncertainty to arrive at the best decision available.

Growing out of the operational research origins of modern policy analysis, enthusiasm for the ability of advanced information and communications technologies to improve policy analysis and decision-making processes developed along with the policy analysis movement (Longo, 2015). At the close of World War II, Vannevar Bush (1945) expressed hope for a technology-enabled improvement of the human condition. Following the growing capacity development in information technologies throughout the 1950s and 1960s, the height of the positivist approach to policy analysis witnessed a golden age of computer-supported policy analysis (Bossel, 1977), giving rise to bold utopian initiatives like the Chilean "Project Cybersyn" (Beer, 1973).

While technical policy analysis rooted in quantitative methods became increasingly sophisticated from the late 1960s onward, high-profile failures exposed the limits of this positivist

approach to policy analysis (May, 1992). With the undermining of the positivist hegemony, the failure of computerized approaches to solve complex public problems diminished enthusiasm for computer-supported policy analysis. Part of the explanation for this can be found in the limited data available about system conditions and the lack of technological capacity in policy domains (Morçöl, 2001). If only data systems were more robust, computational power more widely available to analysts and decision-makers and technically sophisticated policy analysis more entrenched throughout the bureaucracy, positivists argued, some of the earlier limitations would be overcome.

Those 'if only' pleas appear to be answered in the digital era, represented by the ubiquitous deployment of networked computing devices throughout society and increased data analytic capacity to manage the result flood of data. With the emergence and expansion of the Internet and the slate of digital technologies that have developed in recent years, we now face a deluge of 'big data' that has increased the volume, speed and range of policy-relevant evidence available to policymakers (Kitchin, 2014). These technologies and their users generate a variety of signals through devices like mobile smartphones, Internet of Things devices, personal wearables, electronic transaction cards, sensors, web search and web traffic and social media. The accumulation of these data, and associated metadata such as geolocation information and time and date stamps, results in a previously unimaginable amount of data, measured with phenomenal precision, taken from multiple perspectives and captured continually in real-time (McAfee and Brynjolfsson, 2012). Advances in data storage technologies now make it possible to preserve increasing amounts of data, and faster data transfer rates allow for cloud storage at low cost. We can now capture, store and process data—in volumes previously unimaginable, from ubiquitous sources, with continuous flow, observed through multiple channels—and have increased capacity to manage, analyze and understand these new data sources (Lazer et al., 2009). This technology revolution offers the potential to revive the positivist tradition in policy analysis and, through it, how data and policy analysis can better support policymaking (Bankes, 1993).

Not only is the volume of data and our ability to analyze it changed, but also the conception of the staged policy cycle along with it. Because the same technologies that allow for real-time data capture from the field provide a platform to communicate outward to actors, agents and those devices, policy formulation can be connected with implementation and evaluation processes in a continuous and real-time cycle of ideation, experimentation, evaluation and reformulation (Pirog, 2014). New digital tools, platforms and the generated data allow for a seamless linking of those discrete policy stages into a continuous real-time feedback cycle of problem identification, tool modification, system monitoring and evaluation, where the very devices that are used to gather data also serve to communicate policy signals to the environment, serving again to gather data to support policy tool refinement. This reformulation of the computer-supported policy analysis movement has been labeled *inter alia* 'policy analytics' (Longo and McNutt, 2017), signaling a reformulation of policy analysis to account for the age of big data analytics.

The combination of big data and data analytics will become increasingly available as a platform for policy design. Digital era policy design based on big data and analytics can provide a much richer and more precise view of a system and the actions of individual agents in it, based on massive amounts of continually updated, real-time data from multiple sources. This approach offers a view of how individuals are dynamically interacting with the world, revealing how agents and systems react to changes in environmental conditions and variables. This, in turn, offers the possibility of experimental manipulation of policy instruments in a continual system of policy formulation, implementation and evaluation (Haynes et al., 2012; Paquet, 2009). As policy signals are sent into the field, individual and system responses to those changes are revealed in the incoming data, which is analyzed in real-time to provide guidance to further policy tool modification.

Continual modifications of policy tools can be observed for their impact as the system responds to the policy interventions and further modification moves the system conditions closer to the policy target (Esperanza and Dirk, 2014).

A real-time experimental policy design approach begins from the premise that the solution to a complex policy problem cannot be known *a priori*, but that policy analysis can guide the initial intervention and establish the framework for moving towards the desired outcome. An experimental approach would identify the targeted system and the policy problem being addressed, establish the mechanisms for communicating the experimental policy signals and monitoring individual and system reactions and develop algorithms (either automated or as frameworks for human decision-making) for modifying the policy signals based on the data received from the system in order to steer the system, ultimately, towards the desired objective.

Policy experimentation is not a new approach, building on the idea of policy incrementalism (Lindblom, 1959) with examples of trials, experiments and pilots of varying degrees of scientificness (Breckon, 2015). However, earlier approaches to experimentation had a number of limitations: the experimental field was far removed from the policy interface, the experimental conditions were difficult to control and the time lag between experiment and evaluation was long (Berk et al., 1985). While pilot projects have long been used in policy analysis to trial a new idea in a limited area before widespread implementation, micro-experimentation would allow for the practice to be employed rapidly, frequently and under a range of conditions to test for the robustness and generalizability of results. Recent experiments show the potential of policy experimentation, for example in reducing administrative failures (Behavioural Insights Team, 2012) and understanding social dynamics (Bond et al., 2012).

Two conditions might be imposed on these experimental processes of continual policy tool modification and observation: that they be conducted in a micro-experimental fashion that is limited in scope and that they be subject to 'pre-registration' as to the anticipated outcomes. Again, because the solution to a complex problem cannot be known *a priori*, the impacts of a policy intervention also cannot be known. By reducing the magnitude of the policy signal modification—i.e., engaging in *micro*-experimentation—system shocks can be avoided, widespread consequences of policy errors can be minimized and the policy gradually calibrated so as to zero in on the target or equilibrium. Rather than focus on implementing large-scale policy changes that may be subject to large or catastrophic failures, small-scale experimentation allows for small mistakes in the service of learning as the policy is scaled up.

The concept of 'experiment pre-registration' is borrowed from science studies (Nosek et al., 2017) to provide a framework for ethics and responsible governance. Progress in science relies on generating hypotheses with existing observations or testing hypotheses with new observations. Pre-registration of experiments involves defining research questions and the analysis plan prior to observing the research outcomes, something that has become increasingly necessary in the big data era, foretelling the 'end of theory' (Anderson, 2008). In experiments, pre-registration amounts to "I think *this* will happen if we do *that*." In policy design, pre-registration might mean "I want this policy outcome and think this policy tool mix will achieve it." Without pre-registration, big data allows for scientific or policy 'fishing expeditions,' where failures can be cited as interim setbacks and successes claimed by policymakers as entirely due to their sagacity. To guard against the lack of accountability that can come with shifting policy goal posts and a lack of policy objective specificity, and because ethical policymaking in the democratic administrative state ultimately requires that analysts and decision-makers say something of consequence and importance (Majone, 1989), policy design pre-registration can distinguish between policy experimentation and blind searching for a fortunate outcome.

Policy experimentation does raise ethical concerns. While medical randomized control trials (RCTs) have developed good guidelines around informed consent and the ethics of placebos, deception and blinding (Edwards et al., 1999), the politics of policy experimentation in a democracy raise legal and ethical questions about the unequal treatment of citizens in a true RCT (Pearce and Raman, 2014). Questions about fairness in a democratic society where a new policy intervention is tested on some but not others, whether providing a benefit or imposing a cost, need to be considered. Petticrew et al. (2013) have proposed modifying the concept of clinical equipoise—a state of not knowing which intervention is best or even whether any intervention is better than doing nothing—to one of 'social equipoise' in policy experiments. This technical argument, however, does not address the political fallout that may accompany news that a government was offering a benefit to some regions or persons and not others, or imposing a cost only on some individuals. Nor does it address the problem of motivated reasoning in the evaluation of policy evidence, where the potential to benefit from a policy change can influence the objective evaluation of its merits (Kahan, 2015; Taber and Lodge, 2006).

Techniques for policy design include methods such as user ethnography, personas, user journeys and service mock-ups. The mechanism for undertaking policy design experiments focused on here is prototyping, often used today in government by innovation hubs, policy labs and digital government service units (Clarke, 2017). Kimbell and Bailey (2017) review changing approaches in public sector management and organization in the UK, calling prototyping part of a 'new spirit' of policymaking that allows for a more adaptive and agile approach to policy and service design. Prototyping draws on experience in a number of fields, including computing (Mayhew and Dearnley, 1987), product design (Sanders and Stappers, 2014) and organizational behavior (Coughlan et al., 2007). In policy design, prototyping has been used in a variety of ways, from having citizens, stakeholders, public servants and politicians respond to an exhibit of a potential service, using design methods to consider potential policy solutions or simply having representative users review paper sketches of proposals.

New digital tools now allow for the *rapid prototyping* of policy designs. Rapid prototyping is a software design methodology that has been demonstrated to be effective in responding to user's needs (Luqi, 1989; Mierswa et al., 2006). It lets users try out a software system, discover problem areas and influence the development of the product. Because of the digital foundation of the system, changes can be rapidly integrated into subsequent versions (Tripp and Bichelmeyer, 1990). As government cultures are typically risk-averse, rapid prototyping can be "alien to mainstream bureaucratic practice" (Mulgan, 2014, p. 3), as it involves learning fast by doing, rather than detailed planning prior to implementation. Typically suited to the development of digital products, new tools such as CAD software, 3D printers and virtual reality allow for rapid prototyping of physical objects as well as systems and services. Whereas policy design is conceptualized as both the procedural activities of policy formulation ('design as verb') and the substantive content (the tools and instruments) of the design itself ('design as noun') (Howlett et al., 2015), rapid policy design envisions those as a coterminous process—albeit an new and challenging one, akin to attempting to "reengineer the plane while flying it" (Noveck, 2015, p. 20).

Applications

What would a rapid prototyping approach to policy design look like in practice? The combination of digital signals and new analytic techniques can help to understand and influence behavior in contexts such as transportation, crime, energy use, migration, food safety, urban planning and public health (Rogers, 2013; Rogers et al., 2015). Rapid prototyping for policy design can take a range of approaches. Three approaches are surveyed here: social media listening as rapid

feedback, perpetual beta and A/B testing of digital services and real-time feedback from policy interventions.

One of the simplest lines of analysis for those venturing into policy analytics lies in social media monitoring to understand citizen's preferences, experiences, values and behaviors in response to an actual or proposed policy tool change (Grubmüller et al., 2013). Rather than issue a white paper and gauge stakeholder feedback through formal consultations or initiate a minor policy tool change and prepare for complaints to trickle in, a rapid prototyping approach would send a signal into the policy environment (as either a proposed or real change) and then monitor social media to assess the reaction and then further tweak the change in response. By searching and monitoring social media (e.g., Twitter, Facebook, etc.) for words, phrases, #hashtags or @mentions of government accounts, persons, policy initiatives or ideas (using platforms like TwXplorer at https://twxplorer.knightlab.com or Social Mention at www.socialmention.com), citizen attitudes can be gauged and observed over time (Paris and Wan, 2011). Further analysis can center on determining deeper sentiment and meaning extracted from the wider blogosphere and clustering opinions to reveal network properties (Till et al., 2014). Beyond reactive social media listening, social media can also be used in support of problem definition and deciding on policy goals (Navarra and Cornford, 2012) as part of a broad approach to e-participation that includes using social media as policy inputs (Longo, 2017; Waller and Weerakkody, 2016). In the ideation phase of policy design, policy crowdsourcing—"an open call for anyone to participate in an online task . . . by sharing information, knowledge or talent" (Aitamurto and Landemore, 2015, p. 2)—has come to be associated specifically with online opportunities offered by governments for stakeholders and citizens to apply their expertise during policy formulation and implementation (Dutil, 2015). Social media can also being used for prediction and forecasting (Phillips et al., 2017). While forecasting is limited by data biases, noisy data, lack of generalizable results, a lack of domain-specific theory and underlying complexity in many prediction tasks, policy-relevant examples are steadily increasing (Atkinson and Wald, 2007; Lazer et al., 2009; Piscopo et al., 2017).

A second category of rapid prototyping for policy design centers on web platforms for citizen service delivery and for citizen and stakeholder engagement. These approaches borrow concepts such as perpetual beta (O'Reilly, 2005) and A/B testing from private sector web design leaders (George et al., 2014). Derived from the open source software dictum 'release early and release often,' perpetual beta (where 'beta' denotes early release software, traditionally limited to a closed group to solicit feedback and bug reports and the adjective 'perpetual' indicates that the product is always moving towards a never-attained finished state) treats users as unwitting co-developers, with real-time monitoring of user behavior in response to minor changes in form and function of digital interfaces. By observing which new features are used and how they are used, software is continually modified and improved. If users don't use the new feature or it leads to inefficiencies or errors, the features are removed; alternatively, successful modifications are embedded in the developing product. Because modern software services are often accessed from cloud servers and not run from desktop hard drives (where updates are performed on long time cycles, certainly not hourly), perpetual beta has become a central feature of the 'software-as-a-service' (SaaS) era.

A/B testing is also standard practice in modern web design. At its most simple, A/B testing of the content and design of a web page involves covertly providing to a randomly assigned representative user one of at least two different versions of the web page (one being a control page and another being that same page with some minor change such as color, text or design) and determining whether the difference has an effect on some objective (e.g., conversion, click through rate, successful call to action; Kohavi et al., 2009). A/B testing (also referred to as bucket testing, split testing, controlled web design experiment or live traffic experiments) is a standard

web design method for evaluating user engagement or satisfaction with a new design, service or feature. It is widely used among websites, with leading sites running hundreds of experiments per day (Tang et al., 2010; Xu et al., 2015). A/B testing can often illustrate how intuition is often wrong (see the regular A/B test comparisons that are conducted on the site www.behave.org/). A/B testing is purported to be a core method for new digital service teams that have been established in various governments (Mergel, 2016).

A third category, central to the concept of rapid policy design envisioned here, involves the direct collection of user choices and behavior in response to a policy signal using Internet-connected communication and data collection devices. By sending minor modifications of policy instruments into the field, data on the real-time reaction of agents and devices can be collected and analyzed, indicating if the modification had the desired effect and whether further changes are needed. Such an approach has already been applied in select locations in the evolution from high-occupancy vehicle (HOV) lanes to high-occupancy smart-toll (HOST) lanes. HOV lanes take a traditional policy analysis approach to rationing access to designated highway lanes, managing congestion by imposing static conditions for entry (e.g., having more than one passenger in a vehicle or having a special permit based on some condition such as vehicle type or fee paid). Such a rationing approach operates without regard to demand conditions. Because fewer cars meet the conditions required to use the HOV lanes, traffic in those lanes usually moves more quickly than in regular highway lanes. As drivers in the regular lanes see the disparity in traffic flow, they are ostensibly incentivized to do what they can to meet the conditions required to use the HOV lane, e.g., arranging to carpool with another commuter. Tolls are another method for managing congestion on a roadway. Toll rates are usually static, although may change based on previously determined regular time-of-day or direction-of-traffic anticipations. HOST lanes, alternatively, take a policy design approach by taking in real-time data from the highway environment to assess actual congestion and dynamically adjusting the price or other conditions to access the lane for a vehicle that does not meet the access conditions. A pilot project in Los Angeles saw the use of onboard occupancy transponders combined with data from the traffic system to dynamically change lane access pricing every five minutes. Dynamic road pricing has been successful in decreasing congestion and is now a permanent feature there (Schroeder et al., 2015).

A range of additional opportunities for rapid policy design are possible, some already having been experimented with. In these examples, data is collected from the field in response to a change in policy signal, providing the basis for further modification of the signal. The increasing prevalence and detail of digital signage on highways can be used for more than sending price signals. Using a mix of information types—from social shaming to humor to nudges—transportation authorities can try to influence driver behavior such as lane-change signaling and use field sensors such as cameras to determine which approach was most effective. Smart electricity meters can provide incentives to reduce peak-load demand by calculating optimal electricity rates in response to fluctuating demand and communicating those rates to consumers (Newsham and Bowker, 2010; Blumsack and Fernandez, 2012). In local public transportation services, on-demand public transportation in response to rider requests has the potential to replace static routes and schedules. As citizens request carriage from point to point, vehicles are dynamically re-routed to provide transportation for themselves and their fellow citizens (Murphy, 2016). The principles of nudge theory are being applied in dynamic ways that take advantage of the powerful devices ubiquitously moving around us to measure the environment, along with individual behavior and health conditions, and intervening by sending information to the individual via devices such as their smartphone in order to change a behavior (Bert et al., 2014; Weinmann et al., 2016; Bert et al., 2014). Table 19.1 lists a number of policy instrument types and suggests rapid prototyping examples that might be tried in each category.

Table 19.1 Categories of Policy Instruments and Possible Rapid Prototype Examples

Policy Instrument	*Rapid Prototyping Example*
Subsidies	Dynamically pricing subsidies based on supply of subsidized action
Taxes, charges	HOST lanes, dynamic access pricing based on lane demand
Regulations	Social media monitoring to assess citizen reactions
Nudges	Active-living reminders sent via smartphone or wearable
Markets	Web scraping of e-commerce sites as alternative CPI measures
Public information	Natural hazard warning systems, alerts calibrated to severity
Social norms	Road safety campaigns based on shaming, norm promotion
Architecture	Landscape changes (e.g., barriers) in response to pedestrian density changes
Citizen services	Discounts and surcharges in response to volume load
Citizen engagement	Social media messaging that responds to received feedback

Conclusion

The preceding is an attempt to describe how the digital era now provides policy design with the tools and platforms to engage in a real-time feedback, analysis and communication approach to prototyping and designing policy interventions. In linking the policy design movement with the literature on design thinking and rapid prototyping, I argue that the digital era gives policymakers an opportunity to explore *rapid policy design*. We now have the ability to deploy policy design prototypes experimentally, to communicate modified policy signals using digital technology and collect data on the response to those signals using the same technologies and platforms. By working incrementally in this signal/feedback/analysis model, we can move the system towards the desired objective.

It should be obvious, however, that the proposed approach will not solve all policy challenges. Despite the power of modern digital technology, a number of limitations and caveats remain. While more, and more accurate, evidence can improve our understanding and form the basis for better policy, we should not conflate the volume of 'big data' with its representativeness. Despite the mesh of sensors that act as the collection net for policy-relevant data, there is the risk that those without the right devices or engaged in the targeted behavior may be rendered 'digitally invisible' in the move towards rapid policy design (Longo et al., 2017). Even if data is comprehensive, big data hubris can produce policy errors. Traditional social science designs research instruments to collect data in order to test a hypothesis, whereas big data analytics seeks to identify relationships (Wigan and Clarke, 2013). The risk of apophenia—the seeing of patterns in random data—can lead policymakers to identify correlations that are easily mistaken for causal relationships (boyd and Crawford, 2012). And the borrowing of concepts from the private sector world of software providers—such as digital prototypes, perpetual beta and A/B testing—should remind us of some of the lessons from earlier experiments in New Public Management (Waller and Weerakkody, 2016).

It should also be obvious that the model proposed here—of the rapid prototype based on a digitally enabled system of communication, feedback, analytics and tool modification—does not apply across a wide range of policy problems or domains. Many policy areas are not amenable to minor policy tool modifications that can be communicated digitally. Few policy systems form such a tight linkage between a minor modification of a policy signal and an immediately detectable response from the system under observation. More often than not, the policy environment

will be complex beyond the capabilities of even the most advanced analytics. The possibility of policy experimentation will apply in a very limited set of circumstances, especially where legitimate ethical concerns will be raised.

Yet, where the opportunities exist to take advantage of technological advances in the digital era, to more closely link policy design activities with the target environment to establish a seamless, real-time communication/feedback/analysis/modification policy design system, we now have within our grasp the opportunity to modernize the vision sketched by Lasswell over 65 years ago.

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PART 5

Design Conditions and Contexts

20

POLICY DESIGN AND NON-DESIGN—A CONTINUUM OF FORMULATION MODALITIES

Michael Howlett and Ishani Mukherjee

Introduction: Policy Design Studies Past and Future

A roadmap for a new 'policy design orientation' exists in studies undertaken in recent years into the formulation of complex policy mixes, in fields such as energy and environmental policy, among others (Howlett and Lejano, 2013; Howlett et al., 2014; Howlett, 2014a, 2014b). This new design orientation focuses attention on the construction of policy packages operating in complex multi-policy and multi-level design contexts that are expected to address multiple goals and objectives (del Rio and Howlett, 2013). It seeks to better describe the nature of the bundles or portfolios of tools that can be used to address policy problems and to help understand the interactive effects that occur when multiple tools are used over time (Howlett et al., 2014).

The research agenda of the new design orientation is focused on questions that an earlier literature on the subject largely neglected, such as the trade-offs existing between different tools in complex policy mixes and how to deal with the synergies and conflicts that result from tool interactions, as well as the different means and patterns—such as layering—through which policy mixes evolve over time (Thelen, 2004).

This temporal orientation highlights the complex processes through which policies emerge over time. It also raises the issues of how to distinguish between design and other formulation and decision-making processes and the frequency or likelihood of occurrence of each. Many formulation situations, for example, involve information and knowledge limits or involve multiple actors whose relationships may be more adversarial or competitive than is typically associated with a 'design' process and outcome ('non-design') (Schön, 1988; Gero, 1990). That is, not all policymaking is logic- or knowledge-driven, and it is debatable how closely policymakers approximate the instrumental logic and reasoning that is generally thought to characterize an intellectually driven design situation in this field or any other (Howlett et al., 2009).

This chapter addresses the differences between more and less analytical and instrumental policy formulation and decision processes and explores the likelihood of each occurring. By engaging in a discussion of the intention to engage in policy design—whether towards public interest or more politically driven opportunism—and of the capacity of governments to undertake such design efforts, the chapter develops a continuum of several formulation processes that can exist between ideal instrumental and problem-solution driven policy design and other more contingent and less intentional processes.

The Old and New Policy Design Orientation

Policy design entails the conscious and deliberate effort to define policy aims and map them instrumentally to policy tools that seek to achieve them (Majone, 1975; May, 2003; Gilabert and Lawford-Smith, 2012). In this sense, policy design signifies a particular type of policy formulation that is established on collecting knowledge about the outcomes of policy instrument use on policy targets and its relevance to the creation and implementation of policies meant to attain specific policy goals and aspirations (Weaver, 2009, 2010; Bobrow and Dryzek, 1987; Bobrow, 2006; Montpetit, 2003).

In policy studies, 'design' has been associated with both the analysis of policy instruments themselves and their implementation (May, 2003), as well as the effect of policy advice and ideas on the process of policy formation (Linder and Peters, 1990). Policy design in this sense can be understood as having a *substantive* element that comprises the technical arrangements of alternatives that can potentially resolve the policy problem at hand, and a *procedural* component that entails all the processes and activities necessary to coordinate the activities of policy actors in charge of formulating, making decisions and administering the alternatives (Howlett, 2011). Policy design, therefore, spans both formulation and implementation in the policy process by involving the interactions between actors, ideas and interests that flow between both of these stages (Howlett et al., 2009).

Howlett, Mukherjee and Woo have argued the recent renewed interest in policy design is different in many regards from earlier thinking and reflection on the topic (Howlett et al., 2015; see also Howlett and Lejano, 2013; Howlett, 2014a, 2014b; Jordan et al., 2013). Designs are now treated as composed of multiple elements and more complex than was often the case in the past, and more attention is being paid to the processes of policy advice and formulation that lead to the adoption of certain kinds of designs (van der Heijden, 2011, Thelen, 2003; Craft and Howlett, 2012).

Nevertheless, it is often still the case, as has been argued in the past (for example, Lindblom, 1959; Dryzek and Ripley, 1988; Linder and Peters, 1990), that design thinking in the policy sciences is dismissed as an example of excess rationality, one that ignores the garbage-can type quality of much policymaking instances (Cohen et al., 1979; Dryzek, 1983; Kingdon, 1984) and its overt basis in political and administrative bargaining (Lindblom, 1959). This criticism harkens back to the post-WWII criticisms of planning efforts (Lindblom, 1959; Simon, 1965) and the reflections on the nature of bounded rationality and incrementalism that accompanied it (see Baumgartner and Jones, 1991, 2002; Howlett and Migone, 2011). This criticism suggests a very distinct limit to policy efforts in the design orientation, one in which the usual process of formulation followed is much more a 'non-design' one than a 'design' one.

Although many of these same criticisms remain cogent in the case of some extreme forms of and proposals for policy design, here it is argued that this is not a devastating critique of the new policy design orientation, unlike the situation in the 1950s and 1960s with planning. This is because in most cases contemporary adherents and proponents of policy design are well aware of the limits on cognition and knowledge that plagued earlier planners and made them an easy target for critics. What is referred to as 'policy design' in the contemporary literature is more subtle and always assumes the need to design for context (Howlett and Mukherjee, 2014; Bobrow, 2006; Howlett, 2011).

Developing a Spectrum of Design and Non-Design Activities: The Significance of Layering and Temporality

In itself, this suggests that there is a spectrum of design and non-design formulation processes, ranging from capable policy processes informed by instrumental motivations to 'poor' political ones that are driven by other logics. In order to be more precise about these processes, it is

necessary to examine in more detail the nature of the constraints on government intentions, which can negatively affect both design and non-design processes.

As set out above, one factor that impacts movement along the spectrum is the extent to which an existing policy regime is already set in place. That is, almost every design situation is built on the legacy of past decisions, and very few policymaking processes begin anew. Instances of completely new policy portfolios being created are rare, and these are usually cases of unprecedented or groundbreaking legislation that has been necessary in response to a new or growing policy problems (such as the Clear Air Act enacted in the United States in response to air pollution; Schmalensee et al., 1998; Libecap, 2005). In most cases, however, policy initiatives need to be enacted in design spaces that contain previous policies. These efforts can thus often be undermined due to new policy elements conflicting with existing policy components, necessitating reform.[1] This can create policy portfolios or mixes that contain various incompatibilities, tending to frustrate the achievement of policy goals.

That is, the contextual 'lock in' that leads to layering can impact the formulation process by restricting a government's ability to evaluate alternatives and plan or design in a purely optimal instrumental manner (Oliphant and Howlett, 2010; Williams, 2012). Policy arrangements are often the result of transformation pathways that can easily lead to internal contradictions emerging between tools and goals within policy mixes (Hacker, 2004), and mixes of policy elements can emerge over long stretches of time as a result of successive policy decisions that are not necessarily congruent.

Processes of Replacement and Layering and Their Implication for Policy Design

Like these historical neo-institutionalists, many in the new policy design orientation have argued that policy mixes are often the result of transformation pathways—such as layering—that can easily lead to internal contradictions between tools and goals within policy mixes (Hacker, 2005).

In such situations, policy designers are not faced with the issue of completely re-designing a policy 'package' but rather with 'tweaking' some aspect(s) of it in order to repair its efficacy (Gunningham and Sinclair, 1999; Thelen, 2003, 2004; Eliadis et al., 2005). This involves redesigning existing regime elements but in the context of a restricted design space that has been altered by remnants of earlier policy efforts.

In this case, legacies from earlier rounds of decision-making affect the introduction of new elements that conflict with pre-existing policy components. Policy development strongly marked in this way is typically one where new elements are added to the policy mix without the removal of older ones, and existing elements are stretched to try to fit new goals and changing circumstances.

In such circumstances, the introduction of new policy ideas and the resulting interaction with existing policy components to foment major policy change are common phenomena, much more so than the paradigmatic design overhaul suggested by the idea of the creation of an entirely new policy package in order to restore or assert paradigmatic stability. Unlike Hall's original contention, when paradigmatic change does occur, it "may be much less sudden and all-encompassing than originally surmised, reflecting instead a more gradual, hermeneutic and discourse-intensive activity" (Wilder and Howlett, 2014).

Customization as a Logic of Policy Design: The Idea of Packaging

Most early design studies focused on what in fact is the exceptional case of 'replacement' or 'exhaustion,' in which an existing policy is scrapped and a new one adopted in its entirety. Although there is this strong tradition in the design literature to restrict discussions of design

to situations characterized by processes of replacement and exhaustion, there is ample existing evidence showing that many existing policy regimes or mixes have instead developed through processes of policy layering, or repeated bouts of policy conversion or policy drift, in which new tools and objectives have been piled on top of older ones, creating a mixture of inconsistent and incoherent policy elements. Sweeping it all away and starting again with custom made policy designs capable of meeting contemporary policy challenges may seem to be the obvious solution. Policy packaging of this kind, which deliberately seeks to exploit synergistic relationships between multiple policy instruments, was definitely the explicit or implied preference in most earlier efforts to promote enhanced policy integration and coherence in designs across different policy domains (Meijers, 2004; Briassoulis, 2005). While not all design processes—in fact, very few—take place in this fashion, customizing policy responses to complex policy problems as a principle indicates a desirable type of formulation and is therefore on the ideal end of the design–non-design spectrum.

While there cannot be any unambiguously ideal policy instrument portfolios that are predetermined (Flanagan et al., 2011), identifying ideal practices of policy design is a worthwhile endeavor for policy studies. As Howlett and Rayner (2013) reiterated, policy design is about "how specific types of policy tools or instruments are bundled or combined in a principled manner into policy 'portfolios' or 'mixes' in an effort to attain policy goals" (p. 170). And while specific policy tools and goals evolve over time, ideal design that is customizable to changing policy realities is one that aims to uphold coherence and consistency between the means and ends of policy. Ideal design also calibrates a policy response in proportion to the policy goals in hand. 'Proportionality,' then, becomes an important feature of customized design given the instances where governments systematically devise instruments or instrument mixes representing over- or under-reactions, and this disproportionality can tend to move formulation across the design spectrum. Understanding the empirics of disproportionate policy design, therefore, represents a promising new area of research for depicting different design modalities (Maor, 2017).

When this level of customization warrants completely removing old elements and constructing entirely new policy portfolios, the design activity involves replacement (Kern et al., 2017; Kern and Howlett, 2009; Howlett and Rayner, 2007). Constructing policy anew in order to maintain coherence between policy goals and means and uphold consistency between the multiple components of the policy instruments that are involved results in bespoke policy mixes that are tailored to individual policy contexts. In elaborating on 'top-down' versus 'bottom-up' policy design for regional economic development, Howells (2005) states that "bespoke [bottom-up] policies have the advantage that they can be specifically developed for the local context in relation both to the local innovation structure but also in relation to the policy implementation framework" (p. 1228). Conceptually, this modality of design, in its 'purest' form, is also the most amenable to experimentation; a bespoke policy portfolio is generally 'unproven' in other contexts, allowing policy designers the most scope of 'learning-by-doing.' Along the same lines, bespoke policies can also generally be riskier as there is no history of their implementation and may be time- and resource-intensive as they take several iterations to become fully developed.

A closely related form of customization in policy design is the packaging of 'off-the-shelf' or 'best-practice' policies into mixes to address complex policy goals. In many cases, governments may opt to adapt best-practice programs or mechanisms based on their previous success in similar contexts and due to local capacity or time constraints. As Howells (2005) furthers, these policies are often applied due to their tried-and-tested, proven merit,

> because, in a sense, they are 'off the shelf' they offer the potential to be much quicker to apply and therefore are more likely to find an agency or other organization that has

> implemented the policy and has practical experience that can be used to provide subsequent support and advice.
>
> *(p. 1228)*

The drawbacks of off-the-shelf designs can emerge if they are significantly incongruent with local contexts, capacities and resource endowments.

Bricolage as the Logic of Policy Design: The Idea of Patching

Unlike the rare cases of replacement, most design situations must deal with already created policies, are limited by historical legacies, and are thus hampered due to internal inconsistencies. Although other policy instrument groupings might be more successful in creating an internally supportive combination, it may be very difficult to accomplish or propose wholesale change. Designs instead will often focus on reform and replacement of some aspect(s) of an existing arrangement rather than an extensive overhaul of existing policy structures.

A common process behind policy patching is 'layering,' in which some aspects of a policy are layered on top of pre-existing ones (van der Heijden, 2011). As mentioned before, layering in policymaking can indicate an accretion process by which new policy components get combined with a prevailing policy framework.

This form of ongoing adjustment or bricolage forms the underlying logic of the processes of policy layering whereby knowledge about the interactions between internal policy components as well as the variability within the proceses of policy change are fundamental to creating the most effective mix of new and existing instruments (Howlett and Rayner, 2013)

A more problematic type of layering can ensue when the consequences of layering mix elements over the long-term leads to a process of 'stretching' or 'tense layering' (Kay, 2007). That is, repeated bouts of layering can lead to both incoherence ('tension') amongst the goals and inconsistency with respect to the instruments and settings used in a policy area. Legacies from earlier rounds of decision-making will affect the introduction of new elements, which are very likely to conflict with pre-existing policy components. These tensions between the old and the new layers serve to drive policymaking forward so that even in more or less stable periods changes will continue to be made to policies in the effort to reconcile these tensions.

Tense-layering processes that prevail over several decades can lead to policy 'stretching' whereby policy components of a mix are spread over an prolonged period to address new policy priorities or sectors that they were not meant to cover at the outset (Feindt and Flynn, 2009). Unlike patching, stretching is more challenging as a design modality because the haphazard linking of existing policy elements to new goals significantly enhances the risk of incoherence (Howlett and Rayner, 2007). This is especially the case if the tools work at cross-purposes, resulting in incongruence between stated policy goals and an otherwise coherent policy mix (Kern and Howlett, 2009).

Each of the above indicates, three types of design modalities that are largely dictated by how the accumulation of anomalies is dealt with, on the one hand, and the intention of the government for instrumental formulation, on the other. This intent, in turn, dictates the dominant 'direction' of bricolage, based on whether iterations of bricolage move 'forward' towards major change with successful experimentation with policy components in order to correct anomalies, or loop 'backward' as policymakers work to retain the status quo (Wilder and Howlett, 2014).

A final, fourth type of formulation process is non-design. Here some policy decisions and formulation processes are highly contingent ones in which 'design' considerations may be more or less absent and where the logical or empirical relations between policy components are ignored (Kingdon, 1984; Cohen et al., 1979; Dryzek, 1983; Eijlander, 2005; Franchino and Hoyland,

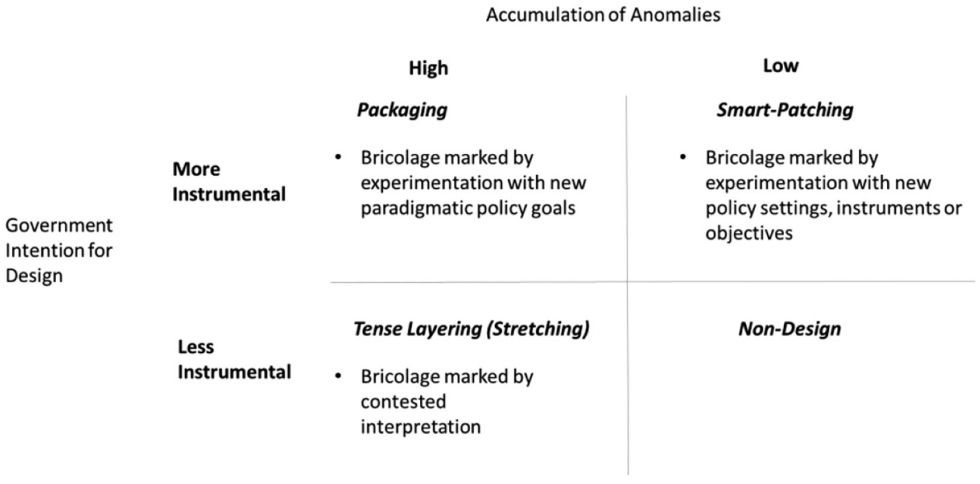

Figure 20.1 Formulation Spaces and Design Modalities

2009; Sager and Rielle, 2013). This includes a variety of contexts in which formulators, for example, may engage in trade-offs or log-rolling between different values or resource uses or, more extremely, engage in venal or corrupt behavior in which personal gain from a decision may trump other evaluative criteria. In these 'non-design' situations, the extent to which such considerations as political gain or blame avoidance calculations outweigh instrumental factors in policy formulation are empirical questions that can be studied systematically (Hood, 2010). These four types of formulation processes (Figure 20.1) vary in terms of the extent to which the policy goal is linked to individual and political interests rather than public ones. Most have been studied extensively in the political science literature but less systematically in the policy sciences (Saward, 1992; Goodin, 1980; Frye et al., 2012; Gans-Morse et al., 2014).

Patching can also be problematic, as the addition of new goals or objectives always increases the risk of incoherence, as does the introduction of policy instruments that suppose new kinds of implementation preferences—for example, when a market orientation is introduced into an instrument set that has been based on a regulatory approach (Howlett and Rayner, 2007).

Layering thus has two sides to it. On the one hand, negative stretching or destructive layering exacerbates tensions between regime elements and leads to wholesale change. However, layering can also have a positive side and help ameliorate or reduce tensions through patching. Moderate layering can be successfully accommodated through a process of learning and patching, leading to a policy mix that exhibits a high degree of coherence, consistency and congruence. Both these processes fall between the design and non-design ends of a spectrum of design processes that moves from highly intentional and instrumental replacement efforts to those that are more partial and less intentional such as 'smart layering' or patching and ultimately to those that involve sub-standard design such as 'stretching' and poor layering (see Figure 20.2).

All of these design efforts can be done well or poorly, but all reflect some wholesale or partial effort to match policy goals and means in a sophisticated way linked to improving outcomes. Non-design types also vary in the same way but more by process of decision-making than by their sphere of activity. Non-design mechanisms, as highlighted above, include activities such as alternative generation by bargaining or log-rolling, corruption or co-optation, or other means that are not instrumental in the same sense as are design efforts. They can also define the

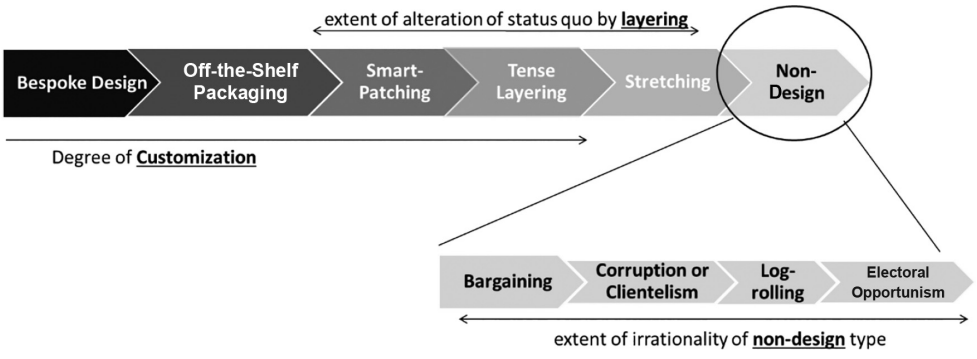

Figure 20.2 A Spectrum of Policy Design and Non-Design Types

Source: Modified from Howlett and Mukherjee (2014).

contextual barriers to design, however, by affecting design efforts to various degrees. Again, such efforts can also be done poorly or well (for example, maximizing the return from a bargain or the returns from corruption) depending on the context and situation and implicating different degrees of appraisal activities and competences or intentions on the part of governments.

Non-design activities can also be broken down in a similar fashion. They extend from those that are compatible with some aspects of design activities, such as bargaining among affected interests over elements of policy alternatives, to those such as pure electoral opportunism. The latter replace the logic of design intentionality with another calculus altogether. These non-design processes have been studied extensively in the political science literature but less systematically in the policy sciences (Saward, 1992; Goodin, 1980; Frye et al., 2012; Gans-Morse et al., 2014), despite their prevalence and importance in many areas.

Conclusion

'Policy design' implies a knowledge-based process in which the choice of means or mechanisms through which policy goals are given effect follows a logical process of inference from known or learned relationships between means and outcomes. But not all policies are formulated in this way, and not all designs are successful.

Policy design includes both 'good design'—in which means are selected in accordance with experience and knowledge—and 'bad' or poor design—in which principles and relationships are incorrectly or only partially articulated or understood. In some circumstances, however, policy decisions are more highly contingent and driven by situational logics, bargaining or opportunism and are not the result of careful deliberation and assessment. To distinguish these circumstances from poor design, these situations results can be thought of as 'non-design.' This chapter considers the question of both design and non-design modes and formulates a spectrum of policy formulation types that helps clarify the nature of each type and the likelihood of each type of policy process unfolding.

Transforming policy ambitions into practice is a complex process, and intentionally creating the best possible arrangement of policy elements is not always the first item on a government's mind, nor necessarily within its reach. Many noble efforts of policymakers have failed due to poor design capacity or the inability or lack of desire to alter elements of existing policies in a more logical, instrumental fashion (Cohn, 2004). These experiences have led to a greater

awareness of the various obstacles to policy design efforts and have gradually fueled a desire to better understand the unique characteristics of policy formulation processes and the spaces and contexts in which design efforts are embedded.

As the discussion here has shown, both design and non-design formulation processes vary along several important dimensions. For design situations—that is, those characterized by a government desire to systematically match ends and means in the attainment of policy goals—the processes vary according to the nature of the resources available for design purposes and the constraints imposed by policy legacies. The former often determine the quality of the formulation effort and the design itself, while the latter generates contexts in which processes such as patching and stretching unfold. In a more non-design world, where the intention to instrumentally design is lacking, the processes vary in their distance from the design ideal of public service and improving the public good through better information and knowledge utilization and management efforts (Holmberg and Rothstein, 2012; Rotberg, 2014); constraints on outcomes also exist.

The above discussion of different design modalities and processes does not preclude, but rather is built upon, the recognition and acceptance of the fact that some policy decisions and formulation processes are highly contingent ones in which 'design' considerations may be more or less absent and where the logical or empirical relations between policy components are ignored.

Transforming policy ambitions into practice is a complex process. The efforts of policymakers have often failed due to poor designs that have inadequately incorporated this complexity in policy formulation (Stead and Meijers 2009; Cohn, 2004). These experiences have led to a greater awareness of the various obstacles that can present themselves to policy design and have gradually fueled a desire for better understandings of the unique characteristics of policy formulation processes and the spaces in which design efforts are embedded.

The new design orientation calls for a broadening of thinking about design beyond policy tool choices, examining combinations of substantive and procedural instruments and their interactions in complex policy mixes. It also has focused on a more detailed study of the actual formulation processes involved in tool and design choices as these occur and have evolved over time (Linder and Peters, 1990; Schneider and Ingram, 1997; Considine, 2012).

Students of policy design must be aware of these differences and the situations governments are in or want to be in while developing policy options, making recommendations and providing advice to governments. More systematic study of these formulation contexts and processes can help move this area of policy design studies forward.

Note

1. Layering, of course, is a concept developed in the neo-institutional sociological literature by some of its leading figures, namely Beland (2007), Thelen (2004), Hacker (2004), Beland and Hacker (2009) and Stead and Meijers (2004), to explain the pattern through which social and political institutions have evolved over long periods of time.

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21

LINKING POLICY DESIGN AND IMPLEMENTATION STYLES

Jale Tosun and Oliver Treib

Introduction

Policy studies address a remarkably wide range of topics and cover a multitude of levels of analysis. The most micro-level research explores the behavior of individuals (e.g. John et al. 2009; Sager et al. 2014; Weaver 2015), whereas the most macro-level research searches for country-comparative patterns of policy decisions (e.g. Falkner et al. 2007; Falkner and Treib 2008; Damonte et al. 2014; Tosun 2013; Mortensen and Green-Pedersen 2015). At first glance, these two extreme ends of public policy do not seem to be conformable with one another, but upon closer inspection, the differences between them start to vanish.

What connects these two research perspectives is the mutual interest in how the behavior of individual and collective actors in society can be steered to attain a given goal. An alternative viewpoint that connects the micro- and the macro-level is how past policies' feedbacks shape future policies (e.g. Mettler and SoRelle 2017). The literature on policy feedbacks typically takes policy outcomes or impacts—here jointly referred to as policy results—as the starting point but pays limited attention to how decisions regarding policy design or implementation style may matter for producing such feedbacks. This gap is the point of departure for this chapter, in which we seek to connect the stages of policy design and policy implementation by means of the concept of policy feedbacks.

Policy design involves two sets of decisions. First, decisions regarding the substance of a policy in terms of what it aims to achieve and which instruments are conducive to the policy's goal. Second, the procedure of a policy in terms of which level of government and agency is responsible for implementing the policy concerned (e.g. DeLeon 1988; Howlett and Rayner 2007; Howlett 2009; Howlett et al. 2015; Capano et al. 2016; Chindarkar et al. 2017). The latter also includes considerations regarding the extent to which the individual implementing agencies concerned have some leeway in adapting the policy to local-level conditions. A constellation where policymakers expect fixed policy intentions to be handed down to addressees with as little deviation as possible is referred to as centralized implementation. The alternative constellation is decentralized implementation, which is characterized by leaving the implementing actors more leeway for adapting the policy to local circumstances. The analytical considerations underlying these two implementation styles and their effects for policy delivery have been discussed widely in the literature (e.g. Pülzl and Treib 2007; Damonte et al. 2014; Saetren 2014; Hupe and Sætren

2015; Hupe and Hill 2016). We seek to make a novel contribution to the literature by contending that the choice between centralized and decentralized implementation has implications for the production of policy feedbacks and therefore the dynamics and potential results of subsequent decisions on policy design.

This chapter unfolds as follows. First, we introduce the concepts on which we elaborate in this chapter. Next, we introduce our integrated conceptual model, which is followed by suggestions for research designs suitable to test the empirical implications of the model. In the concluding section, we summarize our main arguments and offer some ideas for future research.

Clarifications on the Key Concepts

In this section, we offer definitions of concepts that are integral elements of our conceptual model. The concepts concerned are policy tools, policy design, policy implementation and policy feedbacks. We discuss each of the concepts in turn.

Policy Tools

Recent developments in policy studies make it necessary to position ourselves with regard to the types of policy tools we analyze here. In the last few years, a literature on 'new' policy tools based on the insights of behavioral economics has emerged. Commonly referred to as 'nudge policies,' from the title of the influential book by Thaler and Sunstein (2008), the research program underlying this type of policy corresponds to that of heuristics and biases as put forth by the pathbreaking work of Kahneman et al. (1982). Nudge policies aim to bring about behavioral change by capitalizing on systematic cognitive and behavioral biases and thereby directing individual behavior toward a more beneficial outcome (Grüne-Yanoff and Hertwig 2016: 152).

The appeal of nudge policies for policymakers derives from the fact that they promise to bring about effective behavioral change without using the classical, heavy-handed repertoire of policy tools such as coercion or financial incentives. This promise, however, may only hold for a narrow set of policy problems. Often, incentives for non-compliance may be too high and citizens or economic actors may have other reasons than a lack of the appropriate choice architecture for behaving the wrong way, such as a lack of resources or deeply held beliefs (Weaver 2015).

There are thus good reasons to hold on to the classical tools of government action. Even though nudge policies have been applied in several contexts (e.g. John et al. 2009), many problems may still be tackled effectively only by resorting to the coercive force of the law, to financial incentives or disincentives or to direct public service provision (e.g. Hood 1986; Howlett and Ramesh 1993). Most policies still employ these classical techniques, which is why we limit our analytical purview to this type of policy tool (but see Strassheim and Beck 2019).

There are several analytical schemes for classifying classical policy tools, among which the so-called NATO scheme is particularly popular. This scheme differentiates between policy instruments based on the principal governing resource they use: policies using information to convince norm addressees of a particular goal (nodality); policies that employ the coercive force of the law (authority); policies that provide financial incentives or disincentives (treasure); and policies that build or reform institutions to achieve their objectives (organization) (Hood 1986; Hood and Margetts 2007). Another way of classifying policy tools is to differentiate between substantive and procedural policies. Substantive policy tools are intended to directly affect the quality and the quantity of the goods and services provided in society. Procedural policy tools are more diverse than substantive policy instruments and include the provision of information as well as the creation and reform of institutions (see Howlett 2005: 35–6).

Our decision to stick to classical policy tools has important consequences for the subsequent analysis. With nudge policies, policy implementation predominantly requires the policy addressees to change their behavior. Consequently, the implementation process is rather straightforward and simple. With classical policies, the implementation process is more complex, involving behavioral changes by the target groups, but also decisions with regard to the overall implementation structure and the involvement of governmental and non-governmental organizations.

Policy Design

Research on policy design has concentrated on (bundles of) policy tools that public actors choose in order to bring about behavioral changes (see e.g. DeLeon 1988; Howlett and Rayner 2007; Howlett 2009; Howlett et al. 2015; Capano et al. 2016; Chindarkar et al. 2017; Howlett and Mukherjee 2017). The main question underlying the relevant scholarship is how policies can be constructed in such a way that they produce the desired policy results (Howlett et al. 2015; Colebatch 2017). From this, it follows that research on policy design is tightly linked to both questions of policy success and implementation. In this context, Howlett and Lejano (2013) argues that the birth of this specific literature in the mid-1980s was motivated by policy scholars' wish to improve their knowledge of how the choice of policy tools affects the choice of implementation structures and tools (but see Sager and Rielle 2013).

While there is a close relationship between implementation and the success of a policy, the literature on policy design also emphasizes that a policy may fail due to an invalid theory connecting policy actions and desired outcomes. Consequently, according to this perspective, poor implementation is not necessarily the reason for poor policy outcomes (see Capano and Woo 2017).

More recently, the perspective of research on policy design has moved from single tools to multiple tools and tool mixtures used to address policy problems. The main argument of this analytical perspective is that "efforts of policymakers often have failed due to poor designs which have failed adequately to incorporate this complexity into policy formulation" (Howlett et al. 2015: 300). The broadened perspective of tool mixtures opens up an entirely new perspective because the individual elements of the tool boxes selected may conflict with each other. Thus, the process of formulating and adopting policy tool mixtures needs to focus more on the actors involved, their preferred policy designs and their role in decision-making as defined by the respective rules and institutions. Policy tool mixtures are not only more difficult to design than single tools but are also more difficult to implement.

Policy Implementation

The literature on policy implementation deals with how policies are put into practice by administrative actors and to what extent they affect the behavior of societal target groups (for an overview, see Pülzl and Treib 2007). Following Winter (2012) and Vancoppenolle et al. (2015), policy implementation consists of four dimensions: defining the implementation structure, agency decision-making, target group behavior and policy results.

Implementation structure refers to the number and types of organizations involved in the implementation process. It is often the case that two or more ministries or agencies are responsible for implementing a policy. This is especially true with cross-sectoral policies, where the various organizations in charge of policy implementation need to coordinate their activities in what is known as horizontal coordination (e.g. Peters 2015). For example, in order to implement the Paris Agreement on Climate Change, the German government adopted the Climate Action

Plan 2050, which stresses the need for horizontal coordination among several ministries at the federal level. In multilevel polities, policy implementation also often includes vertical coordination among organizations located at different levels of government (e.g. Bolleyer and Börzel 2010). Policy implementation may also require the involvement of private actors (e.g. Thomann et al. 2016; Tosun 2018; Tosun et al. 2017). In addition to the types of organizations or actors involved, the implementation structure includes policy-related rules and procedures and the allocation of resources.

Agency decision-making refers to the process of making the legal stipulations more concrete and therefore implementable. This requires the members of one or several competent organizations to decide on these concretizations and to elaborate a procedure for the delivery of the services, which also includes considerations about the leeway for managerial discretion and the scope and nature of the involvement of street-level personnel (see e.g. Sager et al. 2014). Sometimes street-level personnel benefits from great discretion in making decisions relevant for policy delivery, such as in social work (e.g. Ellis 2007), whereas in other cases, their leeway for discretion is limited, as is often the case in policing (e.g. Rowe 2007) or migration offices (e.g. Dörrenbächer 2017).

Target group behavior refers to the role the policy addressees play in the implementation process—their actions as well as their needs (see Pierce et al. 2014). To obtain social benefits, for example, the target group's involvement in the implementation process consists of filing a request and complying with the conditions attached to the benefits (e.g. regular appointments with case managers). Implementation of other policies may entail more substantive changes to the behavior of the target groups (see Howlett 2005: 47). In the case of promoting biofuels, for instance, policy implementation crucially depends on the behavior of the fuel producers and suppliers as well as on consumers' buying choices (see Tosun 2018).

Policy results are the outcome of the implementation process, which can correspond to the intentions of the policy concerned or deviate from them. For example, if a government seeks to reduce air pollution, it can adopt stricter limit values for the emission of air pollutants. The policy result would correspond to the intentions if levels of air pollution were diminished. The policy result would deviate from the intention of the policy if there were no changes or an increase in air pollution levels. If the policy results deviate from the stipulated intentions, the reason for this can be problems encountered in the implementation process or flaws in the design of the policy.

Of these four elements, policy studies have devoted most attention to implementation structure and agency decision-making.

With regard to the implementation structure, Howlett's (2004, 2005) work on 'implementation styles' has been particularly influential. Implementation styles denote typical combinations of substantive and procedural policy tools that are employed to achieve given policy goals. Howlett differentiates between the severity of state constraints (with regard to resources and legitimacy) and the nature of the policy target (which relates to exchange or policy actors) in order to identify four ideal-typical implementation styles.

Institutionalized voluntarism is the implementation style of choice when the policy targets constitute a large group and state constraints are high. It corresponds to an exhortation-based manipulation of market actors and the institutionalization of networks. For example, in 1985, the Chemistry Industry Association of Canada launched the Responsible Care Initiative, which is a complementary scheme to regulation to facilitate the self-control of the industry and to increase public and political trust in its activities.

Regulatory corporatism is chosen when state constraints are high, but the policy targets constitute a small group. This implementation style regulates market actors and manipulates their interest-articulation system by means of financial incentives. It corresponds to a 'corporatist'

style economic planning model in industrial policymaking (Howlett 2004: 10). Levi-Faur (2010) refers to regulatory corporatism as a system where strong civil and state regulation co-exist. Of the four forms identified by Howlett (2004, 2005), this one has the most coercive character.

The third implementation style, *directed subsidization*, is expected to be chosen when governmental actors face low constraints and interact with large groups of policy targets. Directed subsidization refers to the extensive use of financial instruments to steer the behavior of market actors, coupled with the use of authority to preferentially recognize networks of actors (Howlett 2004: 10). For example, the German government decided several years ago to promote the transition to a bio-based economy, which it supports by means of subsidies for the industries concerned as well as investing heavily into research activities that could potentially support this process.

Lastly, the fourth implementation style, *public provision with oversight*, corresponds to a mobilization model, where governmental organizations use resources to provide goods and services to small groups of policy targets. At the same time, the government seeks to manipulate actor networks through information. This implementation style is chosen when the number of policy addressees is small and so are the constraints on the state (see Howlett 2004: 10). The state-based provision of internet in Estonia can be regarded as a case in point for this implementation style.

Turning to agency decision-making, we enter the realm of a long-established strand of policy studies. This strand of research has long been occupied with controversies between two opposing schools of thought. Top-down scholars stress the role of centrally defined policy goals that were to be executed by a hierarchically ordered administrative structure with as little deviation from the original stipulations as possible (Pressman and Wildavsky 1973; Van Meter and Van Horn 1975; Sabatier and Mazmanian 1979). Proponents of the bottom-up camp, in contrast, argue that policies are often implemented in a much more decentralized way, leaving individual street-level bureaucrats significant leeway in adapting the policy to local circumstances (Elmore 1979; Lipsky 1980; Hjern and Porter 1981). To overcome the often-unfruitful clash between the opposing normative assumptions about 'good' policy delivery underlying these two schools of thought, a third group of scholars decided to develop integrated analytical models. The hybrid models bring together elements from both approaches and treat the question of whether actual implementation processes resembled more the bottom-up or the top-down approach as an empirical question (Goggin et al. 1990; Winter 1990, 2012; Matland 1995).

Policy Feedbacks

The final concept we need to define before setting out our conceptual model refers to policy feedbacks. Most fundamentally, policy feedbacks are conceived as reactions by the policy addressees or other parts of the society to policy decisions adopted in the past (e.g. Pierson 1993; Béland 2010).

Mettler and SoRelle (2017) point to four dominant streams in the study of policy feedbacks. The first stream analyses how policies affect political agendas and the definition of policy problems. The second stream extends the logic of policy feedbacks to how they affect governance through their impact on the capacity of government and political learning by public officials. The third stream concentrates on how policy feedback influences the power of societal groups. The fourth stream concentrates on the study of individual political behavior by examining how policies shape the meaning of citizenship. To this framework, we add a fifth stream of research, which asks how necessary but unpopular policies can be designed to become 'sticky' and resilient towards attempts to dismantle them. For example, Jordan and Matt (2014) applied this perspective for the analysis of climate change policies.

Of the five streams presented, the second stream on governance is most pertinent for our analysis. The corresponding literature argues that policies may affect future governance as they shape the feasible set of policy choices and the type of organizational arrangements assigned to new policies and the broader scope of government action as well as political learning by public officials. According to Mettler and SoRelle (2017), such outcomes are likely to emerge if new policies enable governments to develop capacities they did not have previously, which they can then use for the delivery of policies developed subsequently. Following Pierson (1993), whether a policy is subject to redesign depends on whether the feedback is positive or negative. Positive feedback is expected to preserve the status quo, whereas negative feedback is likely to trigger attempts to redesign policies. Policy feedbacks can, in principle, stimulate or reinforce policy learning (Van der Knaap 1995), which, however, depends on the respective policymakers' willingness and capacity to learn. From this, it becomes clear why policy feedback has been frequently discussed in the context of policy change (e.g. Béland 2010), while this concept has received limited attention from scholars working on policy implementation.

An Integrated Model of Policy Design, Implementation Style and Policy Feedback

Our objective in this section is to develop a model that bridges the different strands of literature and integrates the concepts of policy design, implementation and feedback. We believe that such an integrated model is useful for, on the one hand, aligning the established literature on policy implementation with the literature on policy design and, on the other hand, to connect policy studies with comparative politics by drawing on the concept of policy feedback.

The starting point of the conceptual model is the stage of policy design, which results in two sets of decisions: the selection of the policy tools and the selection of the implementation structures.

The selection of policy tools can be examined from the perspective of policy studies and comparative politics alike; both perspectives offer important insights and highlight complementary aspects. Starting with policy studies, a recent conceptual note by Chindarkar et al. (2017) stresses the importance of capacity for the quality of policy design outcomes. The authors refer to two types of capacity: governance capacity and analytical capacity. When governance and analytical capacity are high, the authors expect *capable design*, while in the opposite constellation—where both capacities are low—*poor design* is the most likely outcome. When governance capacity is high but analytical capacity is low, the authors anticipate *capable political design*, where the policy is likely to be politically feasible but the quality of policy is low. The complementary scenario (low governance capacity, high analytical capacity) is likely to lead to *poor political design*, where the quality of the policy is likely to be good, but it may not be politically feasible.

The literature on policy design also ties into research on path dependency and incrementalism. Drawing on historical institutionalism, path dependency models presume that the best predictor of future policy design is past policy design (see Pierce et al. 2014). This expectation is clearly at odds with the model put forward by Chindarkar et al. (2017), which rests on the assumption that policy design is the outcome of policy analysis. Nevertheless, the two perspectives can be reconciled: in situations where the analytical capacity of governments is low, the most rational decision to take could be to continue doing what they have done in the past.

Comparative politics regards policy design as the outcome of institutional arrangements and the preferences of individual actors. The literature on veto players (Tsebelis 2002) has demonstrated that it makes a difference for the outcome of the policy design process which actors are involved in decision-making and what their policy preferences look like. Policy preferences

stem, for example, from the ideologies of political parties that form the government (Tosun and Workman 2017). Governments that are composed of left-wing parties generally tend to display a greater propensity to intervene in the economy, whereas right-wing parties are more in favor of voluntary measures (e.g. Bakker et al. 2015). In parliamentary systems in Europe, political parties often need to form coalition governments that consist of two or more political parties. In such constellations, the ideology of not only one party is likely to determine the selection of policy tools, but also the ideologies of several parties and the way in which they reach agreements. Depending on the decision-making dynamics within coalition governments, policy design might be poor due to the need to reach a compromise solution. For the same reason, policy design can turn out to be of a good quality because the political parties in government need to convince one another and engage in an analysis of the existing policy options, which then leads to the selection of the alternative that appears most promising.

In the previous section, we followed the conceptual work of Winter (2012) and Vancoppenolle et al. (2015) and differentiated between the implementation structure and agency decision-making. When looking at policy implementation as a complementary dimension of policy design, the differentiation between these two elements becomes clear. We conceive the selection of the implementation structure to include decisions on how much discretionary leeway agencies and bureaucrats inside the agencies should be granted. This does not mean that the need for subsequent decisions becomes obsolete, but the general decision about whether the implementation style is centralized or decentralized is likely to be made at the stage of policy design.

Above we discussed the four ideal-typical identified by Howlett (2004, 2005) that are useful for explaining variations across different policy domains in one country as well as across countries. However, for introducing an integrated conceptual model, we must abstract from the analytical considerations on which Howlett's typology rests. Similarly, we cannot draw on the various models of policy implementation that approach this phenomenon from the top-down, bottom-up or a mixed perspective (see Pülzl and Treib 2007), because these rest on specific assumptions and theoretical considerations as well. Yet we draw loosely on the perspective of top-down and bottom-up models of policy implementation as the selection of the implementation structure will most fundamentally set out whether the implementation process is centralized or decentralized.

Our simplified definition of the implementation structure consists of two dimensions: first, the number of agencies involved in implementation; second, the degree to which the agencies involved have discretionary powers to adjust the policy design. Centralized implementation is characterized by a small number of implementing agencies that have little to no discretionary power. Resonating with the logic of top-down implementation, a centralized implementation structure seeks to ensure that there is no deviation from the original policy design. A decentralized implementation structure comprises multiple agencies and allows them to deviate to a certain degree from the stipulations of the policy in order to take into account the local context, assuming that the policy results will benefit from these adjustments to the policy concerned.

There are several explanations for why the policy design process may result in the selection of a centralized or a decentralized implementation structure. One of the explanations is the political system's institutional features. For example, we can observe that federal polities tend to opt for decentralized implementation structures, whereas centralized polities are more likely to select centralized implementation structures (see e.g. Wälti 2004). Another potential explanation is the nature of the policy problem underlying the policy design. For example, it would be virtually impossible to define a centralized implementation structure for a policy that aims to replace conventional fuels by fuel blend that contains a certain share of biofuels. The production and distribution of fuels is the task of private mineral oil companies, and therefore policy implementation in this particular case

requires these companies to be included in the implementation structure (see Tosun 2017). In such arrangements where public and private actors cooperate, the latter typically also have some degree of discretionary power in implementing the policy (see Thomann et al. 2016).

Centralized implementation results in information about the effectiveness of a policy when it is implemented in an identical or at least similar manner. In more abstract terms, the implementation process—if done correctly—produces repeated observations of whether a policy in questions produces the intended policy results. Seen from this perspective, centralized implementation allows, in principle, for gathering information about the quality of the policy tools selected. This implementation structure also allows for inferring insights on how the policy targets and other societal groups perceive of the policy goal and the policy tool concerned. Put differently, policymakers can gather information on whether the policy goal they seek to attain and the policy tools they employ are accepted and considered legitimate.

Decentralized implementation potentially results in variation of the policy design originally adopted by policymakers, which increases the information basis for the evaluation of the policy tool concerned. The success of policy implementation depends on whether the process facilitated learning, capacity-building and support-building in order to address problems associated with it in a decentralized way, consistent with the interests of the actors involved (see Schneider and Ingram 1997; Pierce et al. 2014). Relating this to the literature on polycentric governance (Ostrom 2010), each adapted policy design can be regarded as a 'policy experiment' that could improve policymaking through processes of upscaling. Likewise, decentralized implementation can produce insights into which variations of the policy design help to improve the societal acceptance and legitimacy of the policy tool concerned.

To sum up, the degree to which the implementation structure is centralized is likely to affect which information governments may infer from the implementation process for future policy processes. For this information to have an impact on future policymaking, it needs to be transformed into policy feedback. To this end, policymakers need to collect this information, analyze it and decide, in light of the insights gained, whether a new policy process is needed. In line with the literature, we expect positive feedback to support the policy status quo and negative feedback to start a new policy process that aims to improve the design of a policy adopted previously (see Mettler and SoRelle 2017).

As we have seen above, decentralized implementation has a greater potential to offer insights into how policies must be designed to be effective and accepted. This richness in information, however, represents a potential impediment to improving future policy design by means of policy feedback. This expectation results from three observations. First, an analysis of variations of one policy requires a high level of analytical capacity, which not all governments possess and are willing to invest (see Wellstead et al. 2011). Second, the multitude of agencies involved in the implementation process may make it difficult to communicate with the actors on the governance level that is responsible for policy design. For example, it could be possible that information on variations of a central policy as it is implemented at the local level only reaches policymakers at the regional level, who are not responsible for the policy design and lack the competence to start a redesigning process. Third, information on the effectiveness of the adapted policy and how it is perceived by policy addressees and the broader society might be inconsistent and potentially force policymakers to decide whether they want to adopt redesigned policy that is likely to be less effective but finds more acceptance among the target population or the other way around. To be sure, this is a rather hypothetical case, because it requires an even more advanced capacity and willingness to conduct policy analysis. Furthermore, it should be noted that while this model can be applied to individual policy tools and policy mixes alike (see Howlett et al. 2015), the latter entails an additional complication.

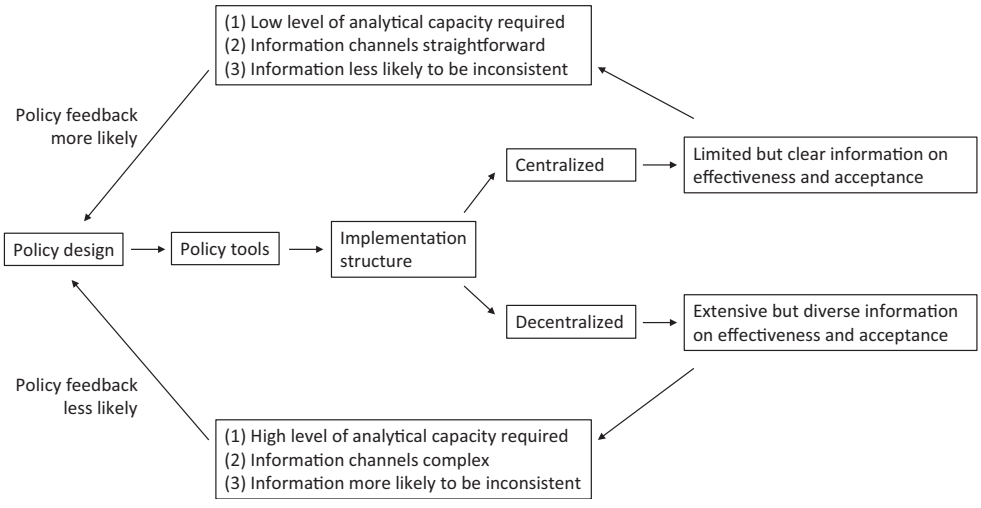

Figure 21.1 A Model of Policy Design, Implementation Style and Policy Feedback

Source: Own elaboration.

Altogether, despite the greater level of useful information that may result from decentralized policy implementation, we postulate that this information is less likely to function as a policy feedback than the sparser information resulting from centralized policy implementation. To be even clearer, we argue that the excess of information can possibly hamper the transformation of information into policy feedback and the initiation of a new policy process. Information originating from centralized implementation is more likely to produce policy feedback, but the information available is more limited. While this can trigger a policy process to redesign the policy concerned, the changes in the policy design are likely to concentrate on one or a few aspects. This can result in a sequence of redesign efforts, each of which concentrates on different aspects.

Figure 21.1 provides an overview of the structure of our conceptual model, including the stages of policy design, the selection of policy tools, the selection of the implementation structure, the outcomes of this selection process (centralized vs. decentralized) and the information resulting from the implementation structure selected.

Toward the Formulation and Testing of Hypotheses

The conceptual model illustrated in Figure 21.1 deliberately omits a number of details in order to highlight the most important elements of the relationship between policy design, policy implementation and policy feedback. It therefore does not include many of the explanatory factors discussed in the specific literatures on these concepts, either. For example, the literature on policy design stresses the importance of analytical capacity (see Chindarkar et al. 2017), which our model only takes into account with regard to the likeliness of policy feedback. Howlett's (2004, 2005) treatise of implementation styles elaborates on the severity of state constraints and the nature of the policy targets, which would also have to be incorporated into an extended model. And the literature on policy feedback argues that welfare policies are particularly likely to produce policy feedback, which means that the type of policy represents another explanatory variable potentially to be included (see Soss and Schram 2007). The fact that our model does

not incorporate these—and other—factors does not suggest that they are irrelevant. In fact, quite the contrary. We expect these explanatory factors to matter, but how exactly they matter needs to be determined in a next step of theorizing. In this next step, the macro-level model will have to be transformed into one or multiple meso- and micro-level models, which then allow for formulating and testing hypotheses.

Before formulating empirically testable hypotheses that capture the role of a set of relevant explanatory variables, we suggest assessing the consistency of the macro-level model first. Only if the basic logic of the model holds is it worth engaging in theoretical refinements and sophisticated testing strategies. For this purpose, we propose adopting a comparative research design that allows for addressing the following three features: the implementation structure, the characteristics of the political system and the analytical capacity.

First of all, we need to determine how often and when policymakers choose a centralized or a decentralized implementation structure. Put differently: do we have variation in the implementation structures selected within and across countries? Drawing on the notion of implementation styles as put forward by Howlett (2004, 2005), one could expect that implementation structures tend to vary across countries, but less so across policy domains within countries. Following the conceptual reasoning by Winter (2012) and Vancoppenolle et al. (2015), the implementation structure is decided individually for each policy, which means that we could expect variation across countries, within countries and even within policy domains. Consequently, before proceeding with the conceptual discussion, we need to develop a clearer understanding of the variation in implementation structures, and ideally, we would do so for different types of variation. Depending on the outcome of this exercise, we could extend our theoretical reasoning and add potential explanatory variables for the variation in implementation structure.

A second but related research step is to pay attention to the features of political systems. Most importantly, we need to differentiate between unitary and federal polities, because this may also determine whether implementation structures are always or mostly centralized or decentralized. The institutional characteristics are also important for learning about possible constraints policymakers may face at the stage of policy design. As already explained above, it is plausible to expect that multi-party governments adopt a different approach to policy design than single-party governments. Furthermore, it is not only important to differentiate between multi- and single-party governments, but also to take into account the ideological preferences of the governing parties with regard to the choice of policy tools. From this perspective, it appears important to observe whether there is variation in the process and outcome of policy design, depending on the specific institutional characteristics of polities, such as the degree of federalism and the partisan composition of governments.

The third line of empirical research should look into the varying analytical capacities of governments. Analytical capacity is a straightforward concept, but it is difficult to operationalize (but see Wellstead et al. 2011). Of course, there is information on the staff and budget of agencies, but these indicators do not tap into the concrete tools these agencies use to analyze policy outcomes and what they consider as the benchmark against which the outcomes are evaluated. The operationalization becomes even more challenging when we seek to carry out comparative research, which almost automatically leads to the need to reduce information in order to facilitate comparability. Therefore, with regard to this third dimension, we need to develop valid measurements, which we could then use to produce comparative insights.

After mastering this task, a next step is to examine when information about the effectiveness and acceptance of policies actually produces policy feedbacks and whether the reasoning put forward above holds true. To this end, we need to explore variation in the production of policy feedback loops. Once we have a better understanding of whether there is any variation, we should

test whether this variation is due to the complexity of information. It is conceivable that policy feedbacks do not or not only stem from the availability and characteristics of policy-related information produced during the implementation process but are triggered by other factors. Despite the richness of the literature on policy feedback (see Mettler and SoRelle 2017), our understanding of how (positive and negative) policy feedbacks come about is limited. Therefore, concentrating on cases where we can observe policy feedbacks and contrasting them with negative cases can produce insights that are not only interesting for the conceptual model proposed here, but also for the comparative politics literature on policy feedbacks in general.

As the prior explanations have indicated, there are only few established operationalizations for measuring the concepts of importance here. Therefore, it makes sense to start with comparative case studies that address only one of the three dimensions. The question of when policy feedbacks emerge requires even more advanced analytical skills and should be addressed after having examined the other factors. At later stages, the empirical investigation could move on to quantitative analyses. Regardless of whether the research logic is qualitative or quantitative, however, it is appears essential to adopt comparative designs because the questions raised above revolve around variation. Once we have an improved understanding of the variability in the concepts, we can apply more sophisticated methods to establish the causal relationships between the different concepts. Consequently, the exploration and systematic analysis of empirical variation appears to be the next steps to take before being able to further our theoretical and conceptual understanding.

Conclusion

Public policies can only become effective once they are put into practice. A policy design may be perfect, but it can still fall short of delivering the intended results when the implementation is flawed. This was the key message of the path-breaking book by Pressman and Wildavsky published in 1973. Eager to further scholarship on policy implementation, we decided to bring together three concepts that have as yet existed side by side without being discussed jointly: policy design, implementation style and policy feedback.

We proposed to connect policy design and policy implementation by means of the concept of policy feedback. The latter has mostly been discussed by studies in the field of comparative politics, and there are only few policy studies that embrace this concept and adapt it to the phenomena typically studied by scholarship on public policy (see e.g. Béland 2010). This is a surprising finding because policy feedback theory is widely considered to belong to the group of policy process theories (see Mettler and SoRelle 2017). With this contribution, we offer a perspective for furthering our understanding of policy implementation and bring the concept of policy feedback back into policy studies.

In this regard, we are confident that our reasoning about when information derived from policy implementation becomes a policy feedback also contributes to the comparative politics literature on policy feedback. The literature on policy feedback typically assumes that a feedback is given. We challenge this automatism and argue that the availability of information does not necessarily correspond to a policy feedback. This contribution would not have been possible without the public policy literature on the analytical capacity of policymakers (e.g. Wellstead et al. 2011), which demonstrates the value of bringing these concepts together.

Policy delivery can be organized in a hierarchical manner, where fixed policy intentions are expected to be handed down to addressees with as little deviation as possible (centralized implementation structure), or it can be organized in a more decentralized manner that leaves implementing actors more leeway for adapting the policy to local circumstances. This chapter has argued that while decentralized implementation offers more insights into what makes policies

work than centralized implementation, the latter is more likely to produce policy feedback that can inform future policymaking and potential redesign of the policy concerned. This expectation builds on the complexity of information that can potentially result from a decentralized implementation process. With decentralized implementation, we are likely to observe a policy to be adapted to the conditions at the local level. Seen from this perspective, the individual adapted policies represent policy implementation experiments, of which some will work and others will fail. This variation in the effectiveness of the (adapted) policy constitutes a valuable source for improving the quality of policy design in the future. However, transforming this information into policy feedback requires a high level of analytical capacity. Even if the necessary analytical capacity is available, inconsistent or conflicting information supplied from the agencies could still hamper the emergence of policy feedback. Consequently, future policy design is more likely to benefit from insights originating from a centralized implementation structure, for this arrangement has greater potential to produce policy feedback and therefore guide policymaking. We believe that this is a novel way of looking at policy implementation and its outcomes for the policy process.

Most studies of policy implementation attribute to decentralized structures a higher capacity to benefit from policy learning than centralized structures. In decentralized arrangements, implementers have flexibility and autonomy to adjust policies in light of particular local conditions and changes in the perception of policy problems (Nilsen et al. 2013). This results in more information about how a given policy can be made operational. The argument we put forward is that despite the lower level of information, centralized policy implementation is more likely to stimulate policy feedback and learning than decentralized implementation because the information is easier to assess and more likely to reach the policymakers responsible for policy redesign.

At this point, we could only present our conceptual model, but owe the readership empirical findings to substantiate our findings. The reason for this is that an empirical test of our claims warrants a complex research design, which requires making decisions on which aspects we would like to keep constant and which ones we want to vary across the cases analyzed. As we elaborated in the previous section, we are convinced that an empirical test of our model can only be attained by adopting a comparative research design. Given the early phase in which our reasoning is, both comparative case study analysis and quantitative analysis can help to refine our argument. The comparison can be attained by looking at different policy domains within one country or at policies adopted in one policy domain across countries. What is important is to select a research design that allows for varying the implementation structure, the analytical capacity of government and features of the political system.

Altogether, we can conclude that the joint study of policy design, policy implementation and policy feedback is still in its infancy and requires innovative conceptual thinking and theorizing. In addition, comparative empirical investigations are needed to create a continuous process of formulating and testing hypotheses. Perhaps the absence of systematic comparative research is currently the biggest challenge for the advancement of this field. Therefore, we welcome all endeavors to produce and analyze comparative data on policy design, policy implementation and policy feedback. In so doing, public policy scholars are well advised to take into account the relevant comparative politics research on policy feedback.

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22
POLICY CAPACITY
A Design Perspective

Azad Singh Bali and M Ramesh

Introduction

In recent years, there has been a renewed interest in the abilities of governments to respond to pressing collective problems. The complexity of policy problems is increasing at the same time as citizens' expectations of their governments are increasing, underscoring the need for governments to develop the requisite policy skills and competencies. These challenges are not particular to developing economies, as even advanced industrialized countries struggle with providing essential services such as healthcare or organizing more complex activities such as the effective oversight of the financial sector.

Despite protracted public-sector reforms over the past two decades that prioritized economic efficiency, contracting out and the general 'hollowing out' of state (Bakvis, 2000; Peters, 2015; Hood and Lodge, 2004), governments today are playing a much larger economic role than ever before (Tanzi, 2011). This, coupled with a policy environment of continual technology disruptions, economic and political uncertainty, the proliferation of analytical tools and methods and the rise of collaborative governance arrangements, requires governments to be highly adept in their policy deliberation and design.

This chapter focuses on the policy capacities—understood as a set of policy skills and competencies (Wu et al., 2015)—that are required to create more informed, sophisticated and ultimately more effective modes of policy deliberation and design as they respond to contemporary policy challenges. The chapter is organized into three sections. The first section provides a conceptual overview of different definitions of capacity used in the literature. The second section responds to the 'capacity for what' question and argues that designs must accommodate certain attributes for them to be successful, which in turn require high capabilities across different dimensions. The third section, using the framework developed by Wu et al. (2015), describes the different types of capacities needed for more effective policy deliberation and design. The concluding section outlines an agenda for further empirical research on policy capacity and design.

Defining Policy Capacity

It is almost a clichéd expression that capacity is a necessary pre-condition for effective policymaking and implementation, yet the concept remains shrouded in mystery and confusion. Despite its wide use in the literature, there are very few systematic reviews of the concept or studies that

measure and track capacity temporally. This section provides a brief survey of the literature on policy capacity, which overlaps considerably with the concepts of 'state capacity' (Rothstein, 1992) and 'governance capacity' (Knill and Lehmkuhl, 2002).

For some, capacity is an encompassing concept that facilitates a government's goals and priorities. For example, Fellegi (1996, p. 6) described capacity as a

> loose concept which includes the government's arrangements to review, formulate and implement policies. It obviously includes the nature and quality of the resources available for these purposes—whether in the public service or beyond—and the practices and procedures by which these resources are mobilized and used.

Moore (1995), for example, argued that public value, legitimacy and organizational capacity were critical in facilitating the effective functioning of public sector agencies. In similar vein, Holmberg and Rothstein (2012) and Rotberg (2014) emphasize institutional features of advanced societies such as rule-of-law, contracts, social trust and legitimacy as key components of policy capacity. Daugbjerg and Halpin (2010) think of policy capacity in terms of state and associative capacities brought to bear through a form of corporatist deliberation.

Many scholars have analyzed capacity in the larger context of policy coordination and coherence. Weiss and Hobson (1995), for example, describe capacity as the ability of governments to coordinate, which they argue is a function of a skilled bureaucracy shielded from political interference, with access to information, and concentration of authority. Peters (2015) underscores how capacity deficits undermine the ability of governments to coordinate and deliver services effectively. Rasmussen (1999) describes capacity as "[the] relations between multiple variables, including how departments interact with one another and central agencies, how department and central agencies interpret, understand and communicate objectives" (p. 332). Parsons (2004) described policy capacity as 'weaving' the interests and multiple organizations in policymaking into coherent policy.

Some scholars, for instance, have adopted a narrower definition of policy capacity focused on the abilities of the bureaucrats to present sophisticated and informed policy advice. Policy capacity, from this perspective, represents the skills, expertise and experience of the bureaucracy and the quality of the institutional infrastructure such as training programs, technology, etc. that underpin their professional development. For example, Painter and Pierre (2005) defined policy capacity as the ability to marshal the necessary resources to make intelligent collective choices, in particular to set strategic directions, for the allocation of scarce resources to public ends. Others have focused on 'policy analytical capacity' or 'policy research capacity,' the skills involved in acquiring and utilizing domain relevant-knowledge and the ability to conduct policy analysis in specific policy domains such as climate change (Howlett, 2009; Oliphant and Howlett, 2010; Wellstead et al., 2011). In similar vein, Tiernan (2015, p. 61) discusses policy capacity as a craft that needs to be carefully honed, "developing and refining the repertoire of necessary skills and experience . . . [and] . . . the ability and willingness to learn from experience."

Some scholars connect the ability of the bureaucracy with larger organizational features of governments. For instance, Davis (2000) has argued that policy capacity should include the ability of governments to efficiently implement preferred choices of action as well as decide upon them. Gleeson et al. (2011, p. 237) defined policy capacity as a "multi-dimensional phenomenon that includes both the capacity of individual policy workers and features of the organizations in which they work." For example, Lindquist and Desveux (2007) state that within every government agency there are those with general expertise as well as specialists with specific skills. And

others contend that attitudes (Wellstead et al., 2010), education and professional experience of the civil service (Newman et al., 2017) affects how evidence is utilized in policymaking and are thus drivers of capacity.

Many scholars have approached policy capacity from the perspective of it being a necessary pre-condition for effective implementation of government decisions. Drawing on the notion of state capacities, Mann (1984) alludes to capacity as 'infrastructural power,' describing the ability of governments to ensure that decisions are implemented. Similarly, for Migdal (1988), capacity is the ability of governments to write the 'rules of the game' that structure interactions. Polidano (2000), in developing an index to measure public sector capacity, distinguishes between policy capacity (which he argues focuses on the decision-making process, coordination mechanisms and flow of information) and implementation authority (the ability to carry out decisions and enforce rules within the public sector and the wider society).

Scholars have described policy capacity as the ability of governments to be adaptive and resilient. Honadle (1981, p. 576), for instance, defined capacity as "the ability to: anticipate and influence change; make informed, intelligent decisions about policy; develop programs to implement policy; attract and absorb resources; manage resources; and evaluate current activities to guide future action." Others are more concerned with the ability of governments to respond to change (Weiss, 1979), respond to uncertainties (Nair and Howlett, 2017; Mukherjee and Giest, 2017) and be resilient (Capano and Woo, 2017).

Recently, a few studies have adopted a normative perspective on policy capacity, describing how capacity can be developed, or the types of capacities needed for effective policymaking. Gleeson et al. (2011), for example, unpack organizational policy capacity into seven essential capabilities. *First*, the capacity to generate and utilize information and evidence in policy formulation and evaluation; *second*, the availability of, or access to, skilled personnel with domain specific expertise; *third*, formal and informal relationships with stakeholders and the ability to engage with consultative exercises; *fourth*, the ability to coordinate across different levels of government, across different ministries and across different portfolios within an agency; *fifth*, links between policy development and implementation; *sixth*, monitoring, evaluation and review; and *seventh*, policy leadership and strategic management of the policy process.

In similar vein, in a series of recent papers Wu Xun, Michael Howlett and M Ramesh have argued that policy capacity is better understood as three sets of interconnected policy skills and competencies: *analytic*, which allows policy alternatives to be effectively generated and investigated; *operational*, which allows state resources to be effectively brought to bear on policy issues; and *political*, which allows policymakers and managers to build the support required to develop and implement their ideas, programs and plans (Wu et al., 2015; Howlett and Ramesh, 2016). Further, these competencies manifest at the level of *individual* policy actors, the specific government *agency* as well at the *system* level (Wu et al., 2015).[1]

Some studies have focused on mapping policy capacity with specific modes of governance. Howlett and Ramesh (2016) have argued that different types of governance arrangements used to organize economic activity require different sets of state capabilities to facilitate effective policymaking. They argue that while deficits in one or a few of the dimensions may be offset by strengths along other dimensions, no government can expect to be capable if lagging along many dimensions (Tiernan and Wanna, 2006). Further, deficits in certain policy skills and competencies can be critical in specific modes of governance and constitute their 'Achilles' heel' (Howlett and Ramesh, 2016). If these critical capacity deficits are not taken into account, then any short-term gain is likely to haunt them later when the consequences of governance failures and poor institutional design become apparent.

Capacity for What?

The different conceptualizations of capacity summarized in the previous section are not contradictory but rather emphasize different sets of resources and capabilities affecting policymaking. What is common in these approaches of capacity is that a highly capable state is not an end goal in itself, but a necessary means for enabling sophisticated policy deliberations, designs and implementation.

On one hand, there is a need for increased capabilities for governments to maneuver through a rapidly changing policy terrain. The rise of plurilateral, collaborative and 'metagovernance' styles are fundamentally changing the extent to which, and how, governments interact with stakeholders in the provision of public goods and services. The contemporary policy environment is characterized by increased economic and political uncertainty; continual technology disruptions that fundamentally change how a problem is conceptualized (let alone addressed); and the growing complexity of modern problems underscore the importance of creating agile, informed and resilient designs. Adding to this are the growing expectations of citizens in increasingly contestable societies that their governments will play a larger role in the provision and financing of positional goods and help manage risks that were previously addressed largely by the market (Tanzi, 2011).

However, on the other hand, many country-specific studies have documented, and many governments have acknowledged, the gradual decline in capacity over the years (Gleeson, 2011; Tiernan, 2015). As early as in the mid-1990s scholars attributed this decline to the gradual 'hollowing out' of government fueled by a series of public management reforms that emphasized fragmentation, contracting out and the unfettered pursuit of economic efficiency in the delivery of public services (Peters, 1996; Rasmussen, 1999).

This seeming contradiction, of the need for greater policy capacity and the gradual decline in skills and competencies, can be addressed by applying the design orientation or problem-solving approach central to the policy sciences to policy capacity (Howlett and Lejano, 2011). As opposed to platitudes on the need for capacity building, it would require responding to 'what skills and competencies are required to be able to address, or at least mitigate, the given problem at hand?' This not only requires being able to conceptualize the problem in its constituent elements, generate plausible solutions and ensure that they are politically viable and can be implemented, but will require designers to be cognizant of the design attributes that increase effectiveness of a given policy or program (Peters et al., 2018).

While some of these design attributes are discussed in the literature (see Howlett, 2017; Howlett et al., 2014; Kern et al., 2017), an axiomatic approach can be used to identify others. Such an approach essentially selects a number of basic properties that an ideal-typical design must embody. The advantage of such an approach is that it focuses attention on the attributes or features of the design, rather than the functional form that it should take. After all, it is the design attributes desired that should determine its functional form, not the other way around. These attributes are summarized in this section.

The *coordination* attribute requires designers to maintain a systemic perspective and ensure that changes in designs are well integrated and coordinated with the existing design architecture. For instance, it is not uncommon for new programs to duplicate the benefits of existing programs administered by a different government agency. Peters (2015) cites the example of Ghana, where residents until recently had up multiple national identity cards, significantly increasing administrative costs. India's flagship health insurance reform, the RSBY, was administered by the Ministry of Labour, which had limited mechanisms for consultation with the Ministry of Health, which supervised existing health programs. Any changes to an existing policy-mix, or even parametric

changes at the level of program design, must take into account and actively manage any adverse impact of its decision on other stakeholders (Lindblom, 1965; Hall et al., 1977).

The *coherence* attribute speaks to the consistency of actions in addressing a given set of policy problems or target groups. It is about systematically promoting mutually reinforcing policy actions across agencies and creating synergies (OECD, 2004) and implies that policies go together because they share a set of ideas or objectives or are targeted at the same beneficiary (May et al., 2006). It is not uncommon that parametric reforms or changes that 'stretch,' 'layer' or 'patch' existing designs can over time change the underlying incentives or erode coherence. Similar to coordination, a systemic perspective is required to measure coherence across policy goals, the underlying policy ideas, targeted beneficiaries and the 'substantive' and 'procedural' means (May et al., 2005). In similar vein, the *goodness of fit* attribute recognizes that designs must be able to reflect and respond to contextual features of a particular sector (Howlett et al., 2014). The policy design has to have a certain 'goodness of fit', which ensures that policy instruments and their settings are compatible with governance styles as well as the broader political context.

The *consistency* attribute requires that all policy measures work towards the same policy outcome. Inconsistencies arise where the measures work at cross-purposes, "providing simultaneous incentives and disincentives towards the attainment of stated goals" (Kern and Howlett, 2009, p. 6). Howlett and Rayner (2013) differentiate between the coherence (in terms of goals) and consistency (in terms of means). If policy means are inconsistent, they argue, it gives rise to 'drift' and 'layering,' which may change the underlying incentive structure of a policy or a program. Others, in similar vein, illustrate how large, unexpected changes in policy means have a negative impact on outcomes.

The *degrees of freedom* attribute speaks to the leeway that designers have to calibrate or change aspects of the design going forward. Designers are constrained by the 'degrees of freedom,' the extent to which past program choices restrict the range of feasible options available. It is very rare that designers can contemplate *de novo* designs, and while they would like to work with unlimited degrees of freedom, in reality incremental changes over time caused by recalcitrant layering, patching and stretching reduce the flexibility designers have (Howlett and Rayner, 2013). Given the need for designs to be adaptive, any changes made today to the underlying policy mix must leave designers sufficient room in the future to make parametric and non-parametric changes.

The *complementarity* attribute focuses on the synergies between various policy tools and components within an existing design. The essential proposition here is that designers must ensure that they harness complementarities when developing policy mixes or use tools that create "positive interactions" (Gunningham et al., 1998; Howlett and Rayner, 2007). Not only does policy design have to ensure that it is coordinated and coherent (the absence of which can be expensive or result in perverse incentives), but it must also actively seek synergies between existing policy tools. For instance, Wu and Ramesh (2014) illustrate how complementarities can be harnessed in different types of policy tools used to organize public services.

The *targeting* attribute focuses on the extent to which distributive policies account for errors of exclusion and inclusion. These, respectively, refer to intended beneficiaries not receiving benefits and the case when the benefits are received by individuals who are not intended beneficiaries of a program. The operational aspect of the design must recognize the extent to which such errors can occur and how can they be managed. The essential proposition from a policy design perspective is not whether type 1 or 2 errors must be avoided, but how the design of the program can reduce the combined incidence of both the errors (Miller et al., 2014).

The *reversibility* attribute speaks to the extent to which technical elements of the design can be fundamentally altered. While this is conceptually similar to 'degrees of freedom,' it focuses on the

scale and if any such changes are politically feasible. In larger economies such as Brazil, China, India and Indonesia, for example, where program beneficiaries are in the millions, it is economically and, at times, politically prohibitive to reverse or retrace policy actions or even elements of a policy program. This is particularly relevant in many public expenditure programs, such as subsidies, that immediately create distributional coalitions that are difficult to overcome in any subsequent reform efforts. To the extent to which reversibility is challenging, errors stemming from inclusion or exclusion can exacerbate the problem. Designers must contemplate and cater for a 'sunset' clause (when the program would expire) or an absolute or relative 'ceiling' in terms of what it can cost.

The *contingency* attribute focuses on the extent to which designs accommodate contingent liabilities, which are potential liabilities that may be realized based on an outcome of an uncertain future event. The challenge for policy design is that in most economies, whether explicitly stated or not, the contingent liabilities that arise from a public program (pensions, healthcare, etc.) or even private programs (such as bailing out large banks) falls on the government. Asher and Bali (2017) cite evidence that suggests that most economies underestimate their fiscal risks and liabilities. Designers do not have to, ex-ante, think of minimizing liabilities, but include provisions on how such liabilities can be managed. These have to be contemplated at the policy formulation stage as reforms to introduce them subsequently are resisted by the beneficiaries of the program (Bali, 2014).

The *transition* attribute focuses on how transition costs of any changes made to the underlying policy design will be managed. Transition costs are monetary and economic costs that are associated during any policy reform, or the costs incurred in transitioning when a new policy tool is layered or patched on in a mix or portfolio of tools. These costs are not trivial and are determined by both the speed and magnitude of transition. For instance, Chile continues to pay (to date) for pension reforms introduced in 1981 when it moved from a pay-as-you-go to a 'funded' pension system and had to absorb liabilities for a cohort of retirees during the transition.

This above list is not exhaustive but embodies features that help increase the effectiveness of designs. Designing policies that are coordinated, coherent, consistent, flexible, complementary, targeted, reversible and so on is an enormous task that will require significant capacity endowments. These specific capacities are discussed in the subsequent section.

Policy Design Tasks and Capacities

As Howlett (2011, p. 124) notes, the process of policy design extends

> to both the means or mechanisms through which policy goals are given effect, and to the goals themselves, since goal articulation inevitably involves considerations of feasibility, or what is practical or possible to achieve in given conjunctures or circumstances given the means at hand.

Identifying skills and competencies that underpin this can be facilitated by disaggregating the process in to a series of specific tasks that will need to be accomplished. These tasks are summarized in Table 22.1, along the same capacity dimensions discussed in Wu et al. (2015).

The sequential ordering of these tasks reflects an important necessary condition for effective or optimal design processes: policy design must, in the first instance, be capable of solving the problem at hand; second, be operationally feasible; and finally, be supported politically (Peters et al., 2018; Chindarkar et al., 2017). These tasks, conventionally described as policy formulation and implementation (Howlett et al., 2008), understandably require policy officials to have a wide

Table 22.1 Policy Design Tasks

Analytical	Conceptualize the problem in its constituent elements; Generate evidence of the root causes and identify plausible options to address them; Use evidence and information to make decisions, use the tools, calibrate and adjust designs;
Operational	Prepare an implementation plan, ensure pre-requisites for employing tools are present; Marshal personnel and financial resources and coordinate implementation activities; Establish accountability and governance mechanisms;
Political	Negotiate and reconcile stakeholder interests and opposition; Communicate the design and its purpose to stakeholders and secure their support; Navigate the design through the political process.

Source: Authors' construction.

Table 22.2 Key Design Skills and Competencies

	Individual	*Agency*	*System*
Analytical	Technical domain expertise, professional training and experience; 'absorptive' abilities; ability to utilize policy advice	Institutional memory, organizational culture of learning, access to expertise; reliance of technology; regular production and dissemination of data	General level of skills, education and training
Operational	Communication, budgeting and financial management skills; problem-solving abilities	Coordination skills; relationships across different government agencies; ability to marshal resources for implementation (personnel, fiscal, technology, etc.)	Accountability mechanisms; procurement and contracting skills
Political	Political acumen and entrepreneurial abilities	Communication and negotiation skills; adept stakeholder management abilities	Public trust; political legitimacy

Source: Adapted from Wu et al. (2015).

range of skills and competencies across different dimensions. Applying the framework developed by Wu et al. (2015), Table 22.2 connects these tasks to corresponding skills and competencies.

Analytical Dimensions

The analytical dimensions relate to the technical know-how, acumen and abilities to identify the most appropriate set of policy tools and instruments that can address the problem at hand. The key question at this stage must be, can the tool be expected to achieve the objective being pursued? Is it the most appropriate tool, or are there other options that might be more efficient? For instance, if the problem is limited healthcare coverage in predominantly informal economies such as Indonesia, India, Philippines and Vietnam, then designing health programs that rely on social health insurance (which is predicated on formal employment) is unlikely to mitigate the problem (Bali and Ramesh, 2015). Similarly, if the policy objective is to provide retirement adequacy for the life-time indigent, then a mandatory savings scheme such as that organized in Malaysia and Singapore is not appropriate, as the problem does not relate to savings but that of low life-time

incomes (Asher and Bali, 2015). If 'black money' is the stated problem, is demonetizing large share of the currency in circulation, such as that conducted in India in 2016, the most appropriate policy tool? To respond to these questions, the implementing agency must have the requisite skillset or capacity.

At the *individual* level, public officials must have the ability to acquire and use internal and external knowledge (Cohen and Levinthal, 1990; Ouimet et al., 2010) and the ability to access and apply technical and scientific knowledge and analytical techniques. They need to have the ability to absorb and process information or evidence in recognizing, formulating, deciding, implementing and evaluating policy. Newman et al. (2017), for example, find that policy workers that actively utilize research and evidence in their work tended to be better educated and have more diverse employment histories than their colleagues. They conclude that deficits at the individual employee level, in terms of education and professional experience, can prevent designers from making the most of the research evidence that is available. Appointing skilled consultants might be an option to make up for any lack of 'absorptive capacity,' but that is equally challenging as it requires certain technical skill and know-how on developing terms of reference and being able to understand and assess their output (Howlett and Migone, 2013). Not only is there an increased reliance on complex techniques such as Bayesian methods, scenario analysis and probability trees in policy deliberation, but designers now have access to 'big data' and other analytical tools such as crowd-sourcing, which require sophisticated abilities to use (Giest, 2017). Policy officials will have to increasingly rely on such data to be able to calibrate or make parametric adjustments to policy designs.

At the *agency* level, governments must have the architecture for collecting and disseminating information within and across public sector agencies that plays a critical role in effective formulation, implementation and evaluation of public policies (Tiernan, 2011; Craft et al., 2013). Collating the information and making it accessible to other policymakers can bring great benefits to governments at small cost (Kwaterski, 2010). Improved information technology, the use of big data and crowd-sourcing offer the potential for improving integration and coordination while enhancing the use of other analytical skills (Ambali, 2010). *System* level capabilities refer to the general state of educational and scientific facilities in a society that affects the availability, speed and ease of access of the public, governments and other policy actors generally to low-cost, high quality information. Although many aspects of this type of capacity may be difficult to change quickly or may be beyond the scope of individual government organizations and individual actors, they rely upon it implicitly and explicitly in order to perform their own analytical tasks effectively.

Operational Dimensions

The clichéd expression 'good policy, poor implementation'—a popular refrain of all failed policies—underscores the importance for designers to anticipate implementation challenges and address them in the formulation state. At the *individual* level, abilities to perform key operational tasks—such as planning, staffing, budgeting and directing—critical to any program or policy implementation plan are required. Often policies fail to realize their intended goals, as essential pre-requisites required (such as the use of complementary tools, policy nudges or disseminating necessary information) are not included as the policy or program is rolled out (Maurya et al., 2017). Skills and competencies to identify necessary pre-requisites and be able to operationalize them are critical to the successful implementation (Wu et al., 2017). Many design attributes, particularly those relating to targeting, contingencies and reversibility (discussed in the previous section), require problem-solving and planning skills (including the ability to communicate,

teamwork, budgeting and financial management, decision-making and problem solving and ethics and integrity; Zhang et al., 2012).

At the *agency* level, organizations must communicate their goals, operational plans and procedures to their employees and, no less importantly, must give the latter a say in shaping them (Kuipers et al., 2013; Matland, 1995). Leadership is critical if groups are to assume new challenges and devise new strategies for meeting them. Expertise in budgeting, accounting and human resource management are also needed by individuals to perform effectively (Howlett and Walker, 2012). Policy managers need skills and competencies to foster relationships with other agencies and different levels of government. From a design perspective, mechanisms for stakeholder management, consultation, communication and, most importantly, coordination—critical to any implementation plan—will need to be identified as well as if existing capabilities are sufficient. At the *system* level, how well policy managers perform depends on their professional development, how well they are trained and recruited, the presence of career systems that promote competence and the presence of clear rules of law and engagement (Howlett, 2004). The increasing reliance on contracting in the delivery of public services requires policy workers to have competencies in designing contracts and experience in public procurement. Echoing this, Asher and Vora (2016) estimate that through improved procurement practices, the government of India can save between 0.6 and 1.2% of GDP annually. Another important system-level competency relates to the presence of mechanisms that ensure accountability. These will need to be incorporated, and a blue print for how they are to be operationalized will need to be developed during the formulation stage. Many evaluation studies document the travails of introducing such compliance measures after a policy has been rolled out as they are fiercely resisted by dominant interests that benefit from status quo (see for example, Ramesh, 2008, 2009, 2013; Asher et al., 2015). This in turn requires competencies that straddle both analytical and operational dimensions.

Political Dimension

In addition to technical and operational abilities, the third set of capacities relate to the political abilities of policy officials. The political context within which problems are defined and solutions are searched, selected and applied are vital determinants of what policies can or cannot achieve. Problems are constructed realities shaped by the interests and ideas of different actors maneuvering to define problems and solutions in ways that promote their own interests. All policies create winners and losers. It is therefore important that policy options are supported sufficiently by potential winners or at least are not opposed by potential losers so much to scuttle it. A measure must be, at the minimum, acceptable to the powerful segments of the government and society and, at best, raise the government's popularity and legitimacy with the population. For the political policymakers in charge, this is understandably often the most import criteria.

Government politicians are the most critical actors in the policy process, and so the proposed solutions must be acceptable to them. Their primary motivation is to attain and maintain office, and the measure should, by and large, not undermine their electoral fortunes. The likely response of powerful interest groups (e.g., business and labor unions), media, etc. to a policy tool is also important because their stance affects the decisions made and implemented. Capacities are required to identify whether or to what extent a proposed policy alternative will be acceptable to relevant powerful groups, decision-makers, legislators, administrators, citizens or others. Is the proposed alternative acceptable to policymakers, policy targets, the general public, voters, etc.? Is the proposed alternative appropriate to the values of the community, society, the legislature, etc.? If the proposed design is technically superior but may not be immediately acceptable to voters

or the general public, does the government have the legitimacy and skills to communicate and 'sell' the design to the public?

Necessary skills and competencies, though, go beyond the analytical and operational to the level of political competencies. Beyond leadership and negotiation skills, conflict resolution and financial and human resources management, a key skill required of policy actors is political knowledge and experience or 'policy acumen' (Wu et al., 2017) or 'political astuteness' (Hartley et al 2015). Policy acumen allows policy managers to develop quick and accurate judgments about the desirability and feasibility of different policies: what will be considered feasible or acceptable by managers, politicians, stakeholders or the public, what will not and why. Understanding the key stakeholders, their key interests and their strategies and resources is a key component of political acumen capacity on the part of individual policy actors. At the *agency* level, policy entrepreneurs must be able to navigate and negotiate a new program or policy through the political process. Securing funds and support from powerful government agencies such as the Treasury or the Ministry of Finance requires deft policy entrepreneurship and negotiation skills. Political legitimacy and the trust of the public are critical *system* level competencies that are critical to any policy design. If the government does not enjoy trust or high degree of legitimacy, it is extremely difficult for the even the most technically and operationally viable designs to be implemented. Public discussion and debate in the policy design process help to increase public awareness of the issues and provide a sense of ownership of reform. This requires an active civil society, an independent media and freedom of speech and assembly (Haider et al., 2011). Freedom of information or right to information, especially in digital form, is increasingly viewed as an essential pre-condition for citizens to participate in the policy process. This composite set of skills and resources across analytical, operational and political dimensions will be brought to bear during any policy design process.

Conclusion

The increasing complexity of contemporary policy problems underscores the need for more effective modes of policy deliberation and design. This in turn requires designs to not only be technically sophisticated and supported by policy elites, but to embody certain 'design attributes' that increase its effectiveness. Designing such policies, however, requires a range of policy skills and competencies identified in this chapter. This chapter has argued that designers will have to bear upon these capacities during the design process to enable more informed, sophisticated and ultimately successful designs.

There are, however, many questions, unaddressed in this chapter, that require further conceptual and empirical scrutiny. For instance, similar to arguments advanced by Howlett and Ramesh (2016) that certain capacity deficits serve as the 'Achilles' heel' of governance, does the absence of specific 'design attributes' or capacities described in Table 22.2 undermine the entire design? Are certain design capacities or/and 'attributes' more critical in specific policy domains (such as healthcare or education or finance) or in specific governance modes? Can governments overcome deficiencies in certain dimensions by emphasizing capabilities in others?

Second, how can the capacities needed for effective designs be measured and tracked? There are limited studies that empirically operationalize policy capacity (Tiernan, 2015; Polidano, 2000; Ramesh et al., 2016), and there is a need to measure specific capacities that facilitate a more effective design process. Rather than the platitudes that emphasize the need for greater capacity building routinely found in the concluding chapter of most evaluation studies, policy deliberation would be better served by identifying specific deficits in capacities, how they can be built and strengthened and, importantly, whether these deficits ameliorated or been aggravated over

time (Wu et al., 2017)? Central to this line of questioning is the need to identify 'turning points' in design capabilities and its enabling factors.

Lastly, there is a growing emphasis in the policy sciences literature on the role of policy toolkits and how 'portfolios' of complementary tools are assembled to address contemporary problems (see e.g. Howlett et al., 2015; Kern et al., 2017). This is central to the 'new' design orientation, which calls for a 'renewal' and emphasizes more informed deliberation and a distinct shift from 'globalization and governance mantras' that defined policy design styles through the 1990s and early 2000s (Howlett and Lejano, 2013). This renewal, however, requires significant investments in capabilities to design and calibrate policy toolkits and portfolios and has received limited attention in the literature. The extent to which such a renewal is successful can be facilitated by an increased emphasis on the specific policy skills and competencies identified in this chapter.

Note

1. See Chapter 24 in this volume for a detailed discussion of the framework proposed by Wu et al. (2015).

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23

CROWDSOURCING AND POLICY DESIGN[1]

Araz Taeihagh

Introduction

Crowdsourcing is becoming ubiquitous! In the words of Lehdonvirta and Bright (2015, p. 263): "If elections were invented today, they would be called Crowdsourcing the Government." Crowdsourcing (Howe 2006, 2008; Brabham 2008) is rapidly evolving and is now loosely applied to instances where a relatively large number of individuals are engaged by organizations for their ideas, expertise, opinions or labor (Lehdonvirta and Bright 2015; Prpić and Shukla 2016). Crowdsourcing has now expanded from focusing on consumers and businesses to non-commercial domains. Crowdsourcing can also increase transparency, broaden citizen engagement in policymaking and foster citizen empowerment (Fischer 1993; Aitamurto 2012, 2016b; Prpić *et al.* 2015; Liu 2017a). Crowdsourcing has now been employed in policymaking in areas such as urban planning, state and federal policy (Seltzer and Mahmoudi 2013; Aitamurto *et al.* 2016), transportation (Nash 2009), law reform (Aitamurto 2016a) and global governance (Gellers 2016). Furthermore, it has been demonstrated that crowdsourcing has the potential to help address some of the prevailing challenges in data and judgment acquisition for policy design and analysis (Prpić *et al.* 2014; Taeihagh 2017b).

Despite the recent advances in the use of crowdsourcing in the public sector, only a handful of studies methodologically examine its use in the policy cycle. It has been demonstrated that, although increasing, the use of crowdsourcing in the policy cycle is still limited, and not all of its potential has been realized (Prpić *et al.* 2015). Scholars have mainly used Open Collaboration (OC) platforms in agenda-setting, problem definition and policy evaluation stages; with a few exceptions, other approaches, such as Tournament Crowdsourcing (TC) or Virtual Labor Markets (VLM), have been neglected.

In the next section, we briefly introduce the concept of crowdsourcing and distinguish between its different general types. We then systematically examine different roles that different types of crowdsourcing can take in the policy cycle and highlight their nuances. We develop a taxonomy of the major types of crowdsourcing to facilitate future studies, distinguishing between procedural or substantive policy tools and front- or back-end policy tools and take steps to help develop more empirical studies to better understand the efficacy of the use of crowdsourcing in the policy cycle. We then focus on crowdsourcing in policy design and examine the new developments in crowdsourcing before the concluding remarks.

Crowdsourcing

Crowdsourcing is an umbrella term, and the definition and scope of it vary among scholars. Crowdsourcing is used when the dispersed knowledge of individuals and groups are leveraged to take advantage of bottom-up, crowd-derived inputs and processes with efficient top-down engagement from organizations through IT, to solve problems, complete tasks or generate ideas (Howe 2006, 2008; Brabham 2008, 2013a). In the context of public policy, this increased access to dispersed knowledge of crowds can enhance knowledge utilization and learning that can increase the chance of policy success (Bennett and Howlett 1992).

Crowdsourcing can be done in a closed environment, in which 'propriety crowds' are utilized through in-house platforms by an organization or carried out using third-party platform crowdsourcing that provides the IT infrastructure and their crowd of participants to the potential pool for organizations to tap into as a paid service (Bayus 2013; Prpić *et al.* 2015).

In this chapter, we focus on the three main types of crowdsourcing identified in the literature and try to develop a more nuanced understanding of the crowdsourcing concept and how it applies to the policy cycle (Estellés-Arolas and González-Ladrón-de-Guevara 2012; de Vreede *et al.* 2013; Prpiće *et al.* 2015).[2] These three general forms of crowdsourcing focus on:

a) microtasking in VLMs (Prpić *et al.* 2014; Luz *et al.* 2015; De Winter *et al.* 2015);
b) TC competition (Schweitzer *et al.* 2012; Zhang *et al.* 2015; Glaeser *et al.* 2016); and
c) OC over the web and social media (Budhathoki and Haythornthwaite 2013; Michel *et al.* 2015; Mergel 2015).

VLMs

A VLM is an IT-mediated market that enables individuals to engage in spot labor through conducting microtasks offered by organizations, exemplifying the production model of crowdsourcing in exchange for money (Brabham 2008; Horton and Chilton 2010; Paolacci *et al.* 2010; Prpić *et al.* 2014; Luz *et al.* 2015; De Winter *et al.* 2015).

Microtasks are best known to be offered by Amazon Mechanical Turk (Mturk.com) and Crowdflower (crowdflower.com). They include tasks such as document translation, content moderation, transcription, sentiment analysis, photo and video tagging and data entry and categorization (Narula *et al.* 2011; Crowdflower 2016). Such tasks can be broken down into different steps (microtasks) that can be carried out at scale and in parallel by individuals through human computational power.

At the moment, these microtasks are better performed by human computation and through collective intelligence rather than by using computational approaches and artificial intelligence (Taeihagh 2017b). The majority of the microtasks offered on these platforms are repetitive and require low to medium levels of skill; thus, the compensations per task are low, and the laborers involved in the VLM platforms are employed anonymously.[3] In VLM platforms, often laborers cannot form teams or groups, and there is only an episodic engagement among them and the platform. This is purely a function of the design of the VLM platforms and can (and will probably) change in future, which will enable completion of more sophisticated tasks and more complex interactions among crowds.

TC

In TC, or Idea Competition (Piller and Walcher 2006; Jeppesen and Lakhani 2010; Schweitzer *et al.* 2012; Glaeser *et al.* 2016), organizations post their problems to specialized IT-mediated platforms (Eyreka or Kaggle) or in-house platforms (Challenge.gov: Brabham 2013b). Here, organizers form a competition through the IT-mediated platform and set conditions and rules for the competition, and

winner(s)' prize. To be considered for the prize, which can range from a few hundred dollars to hundreds of thousands of dollars, individuals or groups (depending on the capabilities of the IT platform and the rules of the contest) post their solutions to the posted problems on the appropriate platform.[4]

TC platforms mainly aim to attract and maintain more specialized crowds that are interested in a particular area. This can range from open government and innovation (The White House 2010) to computer or data science (Lakhani *et al.* 2010; Taieb and Hyndman 2014). TC platforms attract smaller and more specialized crowds that are capable of solving more complex tasks and at times choose not to be anonymous to gain reputational benefits from their successful participations (Prpić *et al.* 2015).

OCs

In OC crowdsourcing, crowds voluntarily engage with the problems/opportunities posted by organizations through IT platforms without expectation of monetary compensation (Crump 2011; Michel *et al.* 2015). Starting wikis and employing online communities and social media to amass contributions, or using project hosting websites such as GitHub for collaboration, are examples of OCs (Jackson and Klobas 2013; Crowley *et al.* 2014; Rogstadius *et al.* 2013; Budhathoki and Haythornthwaite 2013; Mergel 2015; Loukis *et al.* 2015; Longo and Kelley 2016).

The level of the crowd's engagement depends on many factors, such the effectiveness of the 'open call,' the reach and level of engagement of the IT-mediation platform used by the organization and the crowd capital of the organization (Prpić Taeihagh Melton 2015; Prpić and Shukla 2013). As an example, as of 30 June 2016, Twitter has more than 313 million monthly active users;[5] however, this does not necessarily translate into significant engagement from the active users of a platform. Numerous factors influence the level of traction, diffusion and, ultimately, success of an open call in an OC platform. A small number of these factors include the level of prior engagement and popularity of the organization on the platform, the number of followers and shares of content/calls made by the organization and the popularity and stature of the crowds they engage (e.g. attention from celebrities, Nobel laureates), alongside the quality of the content posted (Cha *et al.* 2010; Taeihagh 2017a). Any number of these individuals engaging in the open call can alter, hijack or amplify the agenda of the organization with their networks (Prpić and Shukla 2013; Prpić *et al.* 2015).

The three principal types crowdsourcing described above have different levels of accessibility, crowd magnitude, crowd specializations, anonymity and IT structure, as well as platform framework and interactions (Prpić *et al.* 2015; Taeihagh 2017a: see Table 23.1). Table 23.1 demonstrates

Table 23.1 Comparison of Different Types of Crowdsourcing

	Accessibility	*Crowd Magnitude*	*Nature of the Crowd*	*Anonymity*	*Platform Architecture*	*IT Structure*	*Platform Interactions*
VLMs (e.g. Amazon Mturk)	Private	Millions	General	High	Community building and infrastructure provision	Episodic	Information, currency and virtual services
TC (e.g. Kaggle)	Private	Hundreds of thousands	Specialized	Medium	Community building	Episodic	Information, currency and virtual services
OC (e.g. Twitter)	Public	Hundreds of millions	General	Variable	Community building	Collaborative	Information

Source: Based on Prpić, Taeihagh, Melton 2015 and Taeihagh 2017a.

that different types of crowdsourcing each have unique sets of characteristics, while sharing similarities with other types.

Crowdsourcing as a Tool for Policy Design

Given the brief description of principal types of crowdsourcing, we now examine crowdsourcing as a policy tool using Hood's NATO model (Hood 1986, 2007; Hood and Margetts 2007). In the NATO model, the following four types of resources can be used by governments to address policy problems (see Table 23.2):

- informational advantage through centrality in various networks (nodality);
- legal power to command, regulate or delegate (authority);
- financial means, such as the ability to fund or demand taxes (treasure); and
- deploying resources to form organizations and markets, provide goods and services (organization).

The NATO model does not demand the strict singular dependence of an instrument on one of the four resources. Instead, instruments are categorized according to the primary means they require for successfully addressing their goals. A second distinction used by Hood in characterizing various tools is whether they are used for detecting changes in the environment (detector) or for affecting the outside world (effector). Similar to the effector/detector distinction, Howlett (2000) introduced the positive/negative distinction between policy instruments based on whether they encourage or discourage actor participation in the policy process. Another relevant distinction is whether these policy instruments are substantive (directly providing or altering aspects of provision, distribution or delivery of goods and services to the public or governments) or procedural (rather than directly affecting the delivery of goods and services, the intent is to adjust or amend the policy process and indirectly alter the behavior of actors involved in policy-making) (Howlett 2000, 2010).

Given the distinct functions and characteristics of OC, VLM and TC crowdsourcing, they can play different roles as policy tools. Arguably, each of the principal types of crowdsourcing can also play various roles. For instance, OC crowdsourcing can be used for surveys, information collection and release and advertising, and is thus considered as an information/nodality-based tool

Table 23.2 Example of Policy Instruments by Principal Governing Resources

Nodality/Information	*Authority*	*Treasure*	*Organization*
Information collection and release	Command and control regulation	Grants and loans	Direct provision of goods, services and public enterprises
Advice and exhortation	Self-regulation	User charges	Use of family, community and voluntary organizations
Advertising	Standard setting and delegated regulation	Taxes and tax expenditures	Market creation
Commissions and inquiries	Advisory committees and consultations	Interest group creation and funding	Government reorganization

Source: Howlett *et al.* (1995), based on Hood (1986).

that can act as an effector or as a defector. Alternatively, it can be used for the community and voluntary organization of crowds and be considered an organization-based tool that can be used as an effector for community support or suppression or detector for statistics. However, although increasing, the use of crowdsourcing in the policy cycle has thus far has been limited. Scholars have mainly used OC platforms at the agenda-setting, problem definition and policy evaluation stages; with few exceptions, other approaches such as TC or VLMs have been neglected (Prpić *et al.* 2015).

It has been suggested that Hood's model (1986) is no longer applicable to twenty-first century tools such as crowdsourcing (Dutil 2015), but, as Lehdonvirta and Bright (2015) point out, the use of these tools does not replace participatory approaches already in place. On the contrary, it augments them, given the enabling power of the new digital technology.

The speed and ease with which these participations are happening have increased significantly, which in turn results in orders of magnitude increase in the number of participations, decreases the cost of participation and consequently increases access to dispersed knowledge of the crowds as well as enables challenging power when the best interests of citizens are not taken into account. It must be pointed out that not all applications of crowdsourcing have been with the aim of increasing citizen participation and empowerment in various stages of the policy cycle. Research by Asmolov (2015) and Gruzd and Tsyganova (2015) demonstrates that using volunteers from crowdsourcing platforms is not always benign, and it is possible to prevent collective action by using crowdsourcing, as it can be institutionalized (in particular for political purposes), can facilitate manipulation (e.g. in the agenda setting process) and can decrease transparency (due to the anonymity of certain types of platforms).

At first glance, using the taxonomies of Hood and Howlett, it appears that all of the principal types are substantive in nature, and OC relates to nodality and organization because of dominant thinking about social media (Twitter, Facebook, etc.) and community organization through voluntary OC platforms (e.g. Enterprise Wikis). Similarly, because of its requiring relatively larger sums of money, TC primarily relates to treasure and VLMs primarily relate to organization.

A closer look, however, reveals that the picture is much more nuanced. In Tables 23.3 and 23.4, we highlight the potential for applications of substantive (Table 23.3) and procedural (Table 23.4) use of VLM, OC and TC crowdsourcing as policy tools based on the NATO model.

Tables 23.3 and 23.4 highlight that the principal types of crowdsourcing can almost be used as every type of policy tool based on the NATO model (1986). Although surprisingly different

Table 23.3 Potential Examples of Substantive Applications of VLM, OC and TC Crowdsourcing as Policy Tools Based on Howlett (2010) (D = Detector).

Nodality	*Authority*	*Treasure*	*Organisation*
Commissions and inquiries (OC) (D)	Census-taking consultants (local VLM) (D)	Consultants (VLM) (D)	Market Creation (VLM)
Information collection (OC, VLM) (D)	Committees and consultations (OC) (D)	Grants, loans and tax expenditure (OC, VLM, TC)	Statistics (OC, VLM) (D)
Surveys (OC, VLM) (D)	Standard setting and regulation (OC)	Polling policing (Local VLM) (D)	Use of community and voluntary organizations (OC, VLM, TC)
		Taxes (VLM, OC)	

Source: Author.

Table 23.4 Potential Examples of Procedural Applications of VLM, OC and TC Crowdsourcing as Policy Tools Based on Howlett (2010) (N = Negative, D = Detector).

Nodality	*Authority*	*Treasure*	*Organisation*
Information campaigns and advertising (OC, VLM)	Advisory group creation (OC, VLM) (D)	Interest group creation and funding (VLM, OC)	Evaluations (VLM, TC, OC) (D)
Information release and notification (OC)	Banning groups and associations (VLM, OC) (N)	Research funding (VLM, TC) (D)	Hearings (OC) (D)
Misleading information, propaganda and censorship (OC, VLM) (N)	Agreements and treaties (OC)	Eliminating funding (VLM, OC) (N)	Information suppression (OC, VLM) (N)

Source: Author.

from the current documented application of crowdsourcing in the literature (Prpić *et al.* 2015; Liu 2017b), we speculate this is because fundamentally IT-mediated crowdsourcing platforms act as technological enablers and catalysts for the participation of crowds in the policy cycle, and as such can have almost limitless applications in the policy process.

Table 23.5 examines these potential roles at different stages of the policy cycle.[6] Here we use the front-end (agenda-setting, problem formulation and policy formulation) and back-end (policy implementation, enforcement and evaluations) terminology introduced by Howlett (2009). The most commonly observed use of crowdsourcing as a policy tool in the literature is the use of OC as a substantive front-end nodal tool focused on agenda-setting and policy design stages, followed by back-end nodal OC used for policy evaluations and the front-end treasure use of TC (Prpić *et al.* 2015). The principal types of crowdsourcing as summarized in Table 23.5 can, however, be used as enablers of almost every policy tool application according to the NATO model. As such, the author argues considering crowdsourcing as a policy tool or a definite means of co-production is questionable, and perhaps crowdsourcing should be considered just as a technological enabler that simply can increase speed and ease of participation. In other words, if crowdsourcing enables doing everything, perhaps it does nothing by itself and just facilitates the speed of participation through providing an enabling environment, as a platform.

Moreover, these examples from Table 23.5 show that, although there are convergences around specific themes in terms of the means used, goals for the use of the principal crowdsourcing types can be completely different.

Given the rapid developments in crowdsourcing, the potential it offers in scale-up of the number of individuals involved and rapid acquisition of data and judgments (particularly if expert crowds are involved) is significant for addressing uncertainties surrounding the policy design and analysis (Taeihagh 2017b). Crowdsourcing can increase the level of citizen engagement in policymaking, which has particularly been limited at the policy formulation phase (Prpić *et al.* 2015; Aitamurto 2012, 2016b; Certoma *et al.* 2015). Prpić, Taeihagh and Melton (2014) examine the viability of non-experts using VLMs in assisting in policy design. Using the results from an assessment of climate change adaptation policy instruments as a benchmark, they created experiments with different crowds: one local to the policy context and the other an at-large crowd with no familiarity with the local context. The experiments showed that a non-expert crowd recruited using VLMs could sift through a large set of policy instruments related to a complicated climate

Table 23.5 Categorization of Potential Applications of Principal Types of Crowdsourcing (VLM/TC/OC) as Policy Tools in the Policy Cycle

F = Front-end (agenda-setting, problem definition and policy formulation)

B = Back-end (policy implementation, enforcement and evaluation)

D/E = Detector/Effector; S/P = Substantive/Procedural; N/P = Negative/Positive

Application/Type	*VLM*	*TC*	*OC*	*D/E*	*S/P*	*N/P*	*NATO type*	*(Potential) Examples*
Advisory group creation	B		B		P		**A**	VLM or OC participation in advisory groups
Agreements and treaties			F		P		**A**	Use of OCs for treaty verification
Banning groups and associations	B		B		P	N	**A**	Identification and banning groups online or locally using volunteers or paid workers
Census-taking consultants	F			D	S		**A**	Hiring local VLM participants for conducting census
Committees and consultations			F	D	S		**A**	Use of OCs for forming online committees or receiving submissions for white papers etc.
Standard setting and delegated regulation			F		S		**A**	For example, the Finnish experiment
Commissions and inquiries			B	D	S		**N**	Submissions to parliamentary inquiries
Information campaigns and advertising	B		B		P		**N**	Advertising using social media, hiring individuals through VLMs to participate in online (or local) campaigns
Information collection and surveys	F	F	F	D	S		**N**	Conducting surveys using social media or VLM platforms and small TC competitions
Information release and notification			B		P		**N**	Release of information using social media
Misleading information, propaganda and censorship	B		B		P	N	**N**	Use of VLM and OC for identification and censorship of what is deemed as inappropriate.
Community and voluntary organizations	F, B	F, B	F, B		S		**O**	Supporting formation and participation in non-profit groups using monetary and non-monetary means; receiving solutions or evaluations

(*Continued*)

Table 23.5 (Continued)

Application/Type	*VLM*	*TC*	*OC*	*D/E*	*S/P*	*N/P*	*NATO type*	*(Potential) Examples*
Evaluations	B	B	B	D	P		**O**	Use of social media in OC for receiving crowd feedback, use of VLMs for evaluation of programs and development of tournaments for evaluation of particular programs
Hearings			B		P		**O**	Use of social media for collection of evidence and participation of crowds in hearings
Information suppression	B		B		P	N	**O**	Voluntary or paid use of crowds for suppressing information using information obfuscation
Market creation	B				S		**O**	Formation of particular forms of online markets that can also have offline functionality
Statistics	B		B	D	S		**O**	Collection of statistical data by encouraging voluntary participation of crowds in OC or paid participation of targeted crowds using VLMs
Consultants	F			D	S		**T**	Hiring consultants from expert workers (e.g. platforms such as Odesk, Upwork and Topcoder)
Eliminating funding	B	B			P	N	**T**	Eliminating previously funded research through TC and VLM platforms
Grants, loans and tax-expenditure	B	B	B		S		**T**	Tax expenditure for funding individuals directly through markets or competitions (e.g. research groups) or indirectly by providing support for creating of OC platforms
Interest group creation and funding	F		F		P		**T**	Funding for creating websites for participation around specific topics or hiring individuals to participate in activities relevant to special interests
Poll policing	B			D	S		**T**	Hiring individuals to monitor polls (local VLM; also categorized as a sharing economy)
Research funding	B	B		D	P		**T**	Funding research for large endeavors through TC platforms or use of expert crowds for conducting research using VLMs (e.g. Upwork)
Taxes	B		B		S		**T**	Use of volunteers of paid workers for identifying tax evasion (e.g. identifying pools using aerial photos for water consumption usage or appropriate property tax)

Source: Author.

change policy scenario quickly and cost-effectively. The results demonstrated that the geographic context mattered and altered the performance of non-expert crowds, and the assessments of the at-large crowds of non-experts aligned more closely with the expert assessments.

The results from a recent literature review demonstrate that, at present, the use of crowdsourcing in policy design is extremely limited (Prpić *et al.* 2015). As such, further development of new theoretical frameworks and experiments for exploring and exploiting the potentials that crowdsourcing offers in addressing policy issues is important. Taeihagh (2017b) proposes the examination of new roles for both expert and non-expert crowds at different stages of the policy cycle, as well as an integrated use of crowdsourcing with decision support systems.

At present collection, characterization and examination of the interactions among a large number of policy instruments are difficult. Underutilized types of crowdsourcing, namely VLMs and TCs, can potentially address some of these challenges. For policy design, in particular, crowdsourcing can potentially be used for the collection and characterization of different policy instruments, examination of the policy instrument interactions and evaluation of the proposed and implemented policies (Taeihagh 2017b).

Crowdsourcing provides the ability to scale-up the level of engagement by increasing the number of expert or non-expert participants. As a result, it increases the speed of conducting activities when compared with approaches such as organizing workshops or conducting offline surveys, as the popularity of crowdsourcing in its different forms increases over time.[7,8] As TCs become more popular and engage more specialized crowds that are able to address complex tasks, and as platforms are further developed, more can be accomplished using crowdsourcing. In addition, increasing the ease of use and accessibility of crowdsourcing platforms will further facilitate their direct integration with decision support systems through Application Programming Interfaces (API).

Future of Crowdsourcing

Application of crowdsourcing for policy design requires a high level of policy capacity and is likely to face organizational resistance and have high levels of transaction costs (Painter and Pierre 2005; Milgrom and Roberts 1990; Mazumdar *et al.* 2017). Other potential challenges arise from difficulties of assuring quality outputs with scale up of crowdsourcing efforts, potential for fraud and manipulation of the platforms through monetary means, administrative privileges and malicious attacks. Given these complexities, it is difficult to predict what the future holds for crowdsourcing; however, it is safe to say that the application of IT-mediated platforms such as crowdsourcing is undeniably increasing in both developed and developing countries in private and public sectors (Prpić *et al.* 2015; Hira 2017; Taeihagh 2017a; Liu 2017b). Moreover, at the moment, engagement of crowds through platforms has been manifested in numerous implementations, termed 'crowdsourcing,' 'citizen science,' 'citizen sourcing,' 'collaborative innovation,' 'community systems,' 'crowd wisdom,' 'gamification,' 'open collaboration,' 'peer production,' 'prediction markets,' 'open innovation' etc. As Prpić and Shukla (2016) point out, further development of generalizable frameworks for studying IT-mediated crowds have the potential to unify the field.

Furthermore, crowdsourcing itself is rapidly evolving. It is expected that some of the current limitations of crowdsourcing platforms such as inability to use different forms of crowdsourcing simultaneously will be addressed by development of new hybrid crowdsourcing platforms (e.g. expert TC crowds using VLMs or OC for data collection). There will be further investigation and integration of crowdsourcing with data analysis and machine learning approaches such as in the case of using Natural Language Processing for concept extraction and sentiment analysis from crowdsourced policymaking (Aitamurto *et al.* 2016). Moreover, to date, a vast majority of

the research and practice regarding crowdsourcing has been bound to desktop computing, with few mobile applications (Goncalves *et al.* 2015). With continued development of ICT technologies, however, orders of magnitude increase in connectivity and diffusion of these technologies worldwide, new configurations of software, hardware and people are emerging (Prpić 2016) that can drastically increase the impact of crowdsourcing, as described below:

- Crowdsensing: also known as participatory sensing or social sensing, enables passive collection of data through the sensors of various mobile devices (for example smartphones) to collect environmental data such as temperature, location and acceleration, as a consequence of human movement, passively and autonomously sharing the data through wifi/mobile networks through time (Sun *et al.* 2015; Zenonos 2016; Prpić 2016). More specialized data, such as pollution levels, can also be obtained through this technique.
- Situated crowdsourcing: employs IT installations at specific locations to tap into the creativity and problem-solving abilities of crowds. In Hosio's (2016) words, situated crowdsourcing "simply refers to the process of breaking a large task to smaller pieces, and then offering the subtasks for the public to do using situated technology installations." Situated crowdsourcing requires more active participation from crowds, where participants use dedicated public installations (such as kiosks and displays) to carry out tasks.
- Spatial crowdsourcing: requires participants to move and carry out tasks at specific locations. In spatial crowdsourcing, researchers explore how to engage crowds to carry out tasks such as taking pictures of signs at specific locations or undertake tasks relating to emergency response (Krumm and Horvitz 2014; Goodchild and Glennon 2010). Addressing questions such as who can and should be engaged for such tasks, and how much to compensate people for carrying out such tasks, is more complex than traditional VLMs due to the increased complexity of the tasks. Spatial crowdsourcing can also include voluntary services and overlaps with the sharing economy as with increased focus on use of mobile applications carrying out offline tasks become easier.
- Wearables crowdsourcing: conducted using embedded sensors in devices attached to the humans through clothing or accessories (Prpić 2016). Wearables crowdsourcing can be used for passive collection and transmission of data about the wearer of the device or tasks such as monitoring of air or water quality.

These new crowdsourcing developments are being adopted mainly in the business domain, but the public sector will also benefit from their use at various stages of the policy cycle, further increasing citizen engagement in the future. For instance, effective introduction of crowdsensing and wearables crowdsourcing can be beneficial in policy enforcement and monitoring, while spatial crowdsourcing can engage citizens in the provision of voluntary services or emergency response. Situated crowdsourcing can be used in agenda-setting or policy evaluation.

Conclusion

In this chapter, we briefly introduced the literature on crowdsourcing and considered the three principal types of crowdsourcing, examining their characteristics. We then presented the notion of a generic policy tool, using Hood's NATO model (1986) and Howlett's distinction between substantive and procedural instruments (Howlett 2000, 2010). Using these models, we examined the potential applicability of the principal types of crowdsourcing as different substantive and procedural policy tools, then systematically explored their applications in the policy cycle and highlighted the discrepancy between their current documented use and potential for future use.

By demonstrating the potential for use of crowdsourcing as enablers of almost every policy tool application according to the NATO model in Table 23.5, we questioned considering crowdsourcing as a policy tool or a definite means of co-production and suggested crowdsourcing should be considered just as a technological enabler that simply can increase speed and ease of participation as a platform. We then focused on potential new roles for crowdsourcing at the policy design stage and discussed the new developments in crowdsourcing.

We hope this chapter illustrates the new potential uses of crowdsourcing to scholars and practitioners and that it facilitates the development of more empirical studies (VLMs and TCs in particular) to better understand the efficacy and various potentials for the use of crowdsourcing in the policy cycle as a technological enabler that can increase the speed, ease and rate of participation and, as a consequence, can reduce costs of participation and increase access to the dispersed knowledge of the crowds.

Notes

1. This chapter is modified from Araz Taeihagh, 2017, Crowdsourcing: A New Tool for Policy-Making? *Policy Sciences*, 50(4), 629–47. https://doi.org/10.1007/s11077-017-9303-3.
2. These categorizations are not exclusive or exhaustive, but useful for considering the different roles crowdsourcing can take in the policy cycle. For a review of the state-of-the-art in crowdsourcing, see Prpić (2016).
3. With respect to their offline identities. However, researchers such as Lease *et al.* (2013) have previously demonstrated that significant amounts of information can be exposed about the workers through the VLM websites.
4. www.kaggle.com/competitions.
5. https://about.twitter.com/company.
6. Various classification attempts and corresponding models of the policy processes exist, of which perhaps the most popular is the use of sequential interrelated stages as a policy cycle. In this chapter, based on the efforts of Stone (1988) and Howlett, Ramesh and Perl (1995), the policy cycle is seen as a sequence of steps in which agenda-setting, problem definition, policy design, policy implementation, policy enforcement and policy evaluations are carried out in an iterative manner (Taeihagh *et al.* 2009).
7. Even in the case of online surveys, the speed at which a worker can carry out a microtask is much faster than an online survey (Prpić *et al.* 2014).
8. Expert crowdsourcing, mainly through competition-based platforms (and future high-skilled VLMs sites, once their use becomes more mainstream) and non-expert crowdsourcing through the use of VLMs. OC platforms provide access to both expert and non-expert crowds but require a more sustained effort in attracting and maintaining them. It is worth noting recent research by Bonazzi *et al.* (2017), which demonstrates a successful combined engagement of expert and non-expert crowds in scenario planning.

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24

CAPACITIES AND CUSTOMIZATION IN POLICY DESIGN

Ishani Mukherjee and Azad Singh Bali

Introduction

Most policy designers face complex and intractable challenges that require assembling the most appropriate set of policy instruments to address complex policy goals, especially when sometimes these goals may emerge out of unforeseen policy problems. In the ideal case of policy design, the most suitable instruments can be chosen and assembled into new policy packages that are appropriately calibrated and customized to address the new policy problem context. Such exceptional design circumstances would also mean that relevant policy actors and organizations engaged in the design activity are endowed with the necessary analytical, operational and political policy capacities.

Not surprisingly, this is seldom the case. Instead, policy designers are constrained not just by the context and by their capacities, but are also locked into path-dependent choices made through previous layers of policy decisions. However, in situations where governments are faced with relatively unprecedented policy challenges or pressing policy innovation needs, they often require a new conceptualization of policy elements. To bring more nuance to the process of creating novel policy arrangements that are capable of addressing these complex challenges, this chapter offers a closer examination of necessary governance capacities for policy design and expands upon policy customization as a process of policy design.

The chapter proceeds in three parts. First, we examine the literature on policy capacity and design in order to establish how the process of effective policy design is a function of how well the analytical, operational and political policy capacities on the part of policy designers match with those that are required for the function of particular tools and tool mixes. The second part of the chapter builds on this conceptualization to distinguish two forms of customization: a pure, bespoke design scenario versus more off-the-shelf forms of policy diffusion and adaptation. This is followed by the conclusion. The key point of the chapter is to underscore the capacity considerations for ideal design processes and to unpack what is meant by 'ideal' design by looking more closely at customization as a design process.

Design Capacities: Matching Tool Needs With Policy Capabilities

Studies of the formulation and implementation of policy in general have concluded that success in policy design activities rests on the interplay of analytical, managerial and political capacities on the part of individual policy actors, regulatory organizations and the general policy system (Wu et al., 2015; Gleeson et al., 2011). These policy capacities span a variety of analytical resources that are needed to help effectively generate policy. They also include the managerial capabilities that let state resources be allocated effectively to different policy priorities and additionally include political endowments that delineate the policymaking space that policymakers and administrators have within which to coordinate, create and implement their policy plans (Tiernan and Wanna, 2006; Gleeson et al., 2011; Rotberg, 2014; Howlett and Ramesh, 2016).

These various resources at different levels of policymaking yield nine distinguishable types of overall policy capacity (Table 24.1).

At the individual level, analytical capacity entails various substantive skills; managerial capacities surround effective leadership strategies and political competences are embodied by the individual acumen of policymaking actors to assess the needs and interests of different stakeholders. For organizations, pertinent analytical skills are centered on information dissemination and the creation of an information sharing architecture for the effective transfer of knowledge within and across administrative agencies; managerial competences encompass successful coordination of resources and staffing between agencies; and political aptitude has to do with gaining political support and trust for the agency. At the level of policymaking systems, analytical endowments have much to do with the institutions that exist for knowledge generation and use; operational competences affect overall accountability and transparency; and political capacities directly impact public legitimacy and trust.

Table 24.1 Dimensions and Levels of Policy Capacity

Level / *Dimension*	*Individual Level*	*Organizational Level*	*System Level*
Analytical Skills	1. **Policy Analytical Capacity** Knowledge of policy substance and analytical techniques and communication skills	2. **Organizational Information Capacities** Information and e-services architecture; budgeting and human resource management systems	3. **Knowledge System Capacity** Institutions and opportunities for knowledge generation, mobilization and use
Operational Skills	4. **Managerial Expertise Capacity** Leadership; strategic management; negotiation and conflict resolution	5. **Administrative Resource Capacity** Funding; staffing; levels of intra-agency and inter-agency coordination	6. **Accountability and Responsibility System Capacity** Rule of law; transparent adjudicative system
Political Skills	7. **Political Acumen Capacity** Understanding of the needs and positions of different stakeholders; judgment of political feasibility	8. **Organizational Political Capacity** Politicians' support for the agency; levels of inter-organizational trust and communication	9. **Political Economic System Capacity** Public legitimacy and trust; adequate fiscal resources

Source: Howlett and Ramesh, 2016.

Table 24.2 Dimensions and Considerations for Design Effectiveness

Dimension	*Instrumentality Considerations*	*Design Capacity Considerations*
Analytical	Is/are the instrument(s) capable of solving the problem?	Does the agency know which tool to use? Can the agency calibrate and use the policy tool?
Political	Is the instrument socially acceptable/ politically viable to use?	Does the agency have the legitimacy/ ability to reconcile political differences or deal with political opposition?
Operational	Is the instrument operationally feasible?	Does the agency have accountability mechanisms, coordination mechanisms and a trained bureaucracy?

These three levels of capacities—analytical, operational and political—have a profound bearing on finding the best means for achieving a collective policy goal while being cognizant of context. Both goals and means exist within a context, which shapes how problems are addressed and solutions are selected and applied. Policy aims that are set without consideration of the surrounding context and underlying capabilities produce neither suitable design in practice nor good understanding in research.

Policy design, conceptualized in this way, is about problem solving (Lasswell, 1971). The extent to which a design activity solves a problem is a function of two broad characteristics: the choice of policy tools or instruments and the capacity of the designing agency. The choice of policy tools refers to the instrumental ability of the tool to address the particular challenge, while capacity focuses on the requisite capacity endowments of policymakers to use the tool capably and to its full potential (Wu et al., 2015). These two characteristics can be examined along the same three dimensions presented above (analytical, political and operational), as summarized in Table 24.2. We will discuss each of the considerations presented in this matrix in turn.

Analytical Dimension

Instrumentality

Policy design is predicated on the assumption that certain preparatory tasks have been completed. First, there must be a clear statement on the causes of the problem, based on solid analysis and reasoning; it is hard to design without knowing the objectives that policies will be employed to achieve. Next, it is necessary to survey and identify the range of tools that may be used to pursue the set objective (Bemelmans-Videc et al., 1998; Hood, 2007; Howlett, 2011; Linder and Peters, 1989; Salamon, 2002). While the basic types of tools are limited, there are almost infinite permutations of each tool and, more significantly, various combinations of hybrid tools (Doremus, 2003; Kivimaa and Kern, 2016; Howlett et al., 2015; Wu and Ramesh, 2014).

If solving a problem is the goal, then what goal is pursued depends crucially on the substance of the problem being addressed. Ultimately, the measure must eradicate the root cause of the problem or at least substantially mitigate its adverse effects. There should be good reasons—backed by logic and preferably also evidence—to believe that a tool will help solve the problem.

Why will it work? How will it work? To what effect? If it cannot be credibly shown why or how a tool will solve the problem, then there is no need for further exploration of the tool.

The two tasks described above are denoted as 'problem definition' and 'policy formulation,' respectively, in the mainstream literature on public policy (Parsons, 1995; Howlett et al., 2008). After problems have been defined and solutions scoped, solutions need to be fine-tuned and adapted to the imperatives of solving the problem—that is, designed. The design process consists of assessing the tool's appropriateness and adequacy in addressing the defined problem.

Policy design should start with efforts to estimate if the tool in question has the potential to address the problem being targeted. There are certain innate characteristics of each policy sector that shape problems in the sector and how they are addressed, and these must be taken into account. In the financial and health sectors, for example, information asymmetries and unequal power relationships are inherent problems, and all attempts at policy design in these areas must heed them (Bali and Ramesh, 2017). Negative externalities are innate to the environmental and urban transportation sectors, and monopoly is a key characteristic of the water supply sector. Most problems in these sectors are somehow rooted in, or at least related to, the respective sectors' innate characteristics. As a result, any policy formulation exercise must take these and any other vital characteristics into account. We may call this 'relevance' criteria—that is, the design must be relevant to the fundamental characteristics of the sector in question.

The next issue to address is the extent to which a given tool can be expected to achieve the objective being pursued. In other words, what is the potential applicability of a tool to the context at hand? If promoting vaccination is the objective, for example, then what tool would best help achieve it—a subsidy for providers or users, penalties on recalcitrant families, a public education campaign promoting vaccination or merely the establishment of a task force to study the issues further? If easy access to alcohol is the main cause of underage drinking, the test would be to examine the extent to which a measure will prevent access to alcohol. If lack of textbooks is a key cause of children's weak performance in reading, then the tools must be assessed for their potential to deliver the necessary books to the affected children. Social insurance programs based on regular contributions are of little use in societies with large informal employment (Hsiao and Shaw, 2007). Similarly, regulations are difficult to enforce in countries with weak legal systems and widespread corruption. A tool must pass the potential effectiveness test if it is to be considered further. From a policy perspective, the primary purpose of design is effectiveness, i.e., the extent to which an action would help solve public problems.

While the potential to get the job done is the primary consideration, policymakers may want to simultaneously pursue other objectives, such as efficiency and equity (Weimer and Vining, 2017). Effective at what cost and to whose benefit are legitimate questions to consider while assessing the effectiveness of tools.

It is always desirable to do more with less, and this approach must be preferred to those measures that are expensive relative to the benefits they provide. Efficiency, however, is not as important a criterion as often presented in policy discussions informed by economistic thinking. The primary purpose of policymaking is to solve problems, i.e., effectiveness, not to save money, unless the main problem being addressed is a budget deficit that the government is trying to reduce. More important, some of the most expensive things governments do—defense, education, health and social security, for example—cannot be assessed against efficiency criteria in either technical or allocative senses of the term.

Equity is a vital but problematic criterion. To the extent that inequity is an integral part of a market economy, there is a limit to how much policymakers can tinker with equity concerns without stifling other desired objectives. Yet inequality cannot be ignored, if only because it is difficult to ignore it in societies with popular franchise. More important, in some social policy

sectors equity is associated with the very essence of the sector, as in social protection, for example, where supporting the poor's income is the main objective. In health care and education, similarly, the objective of providing the service to all is essentially an equity issue because it is the poor who will be left out without government support. Thus, policies must be chosen not only on the basis of their technical and political effectiveness but also the extent to which they promote equity while also being efficient.

Design Capacity

Understanding problems and identifying and selecting tools to address them is a challenging task that requires immense analytical skills and resources (Painter and Pierre, 2004; Parsons, 2004). It requires an ample number of individuals with domain expertise, analytical and agency-level skills. For example, social insurance agencies need a sufficient number of statisticians and actuaries, accountants, fraud detectives and so on, in addition to a range of administrators in charge of personnel, public relations and other duties.

For technical skills to be used, however, the necessary data and information must be available. Thus, the social insurance agency requires a system for collecting, classifying and disseminating information and a robust e-governance architecture to connect with the users and providers. There are many instances where complex policy tools capable of solving a problem effectively are utilized, but they are implemented or managed poorly partly because the agency does not have the requisite ability. For instance, *diagnostic related groups*, a complex provider payment mechanism in health care, must be adjusted continually using data on the prevalence of co-morbidities. However, most countries that utilize the mechanism do not have the analytical ability to re-calibrate payments based on continual big data analysis, thereby leading to poor cost control (Bali, 2016).

Easy availability of economic and social data and political support for evidence-based policy, and availability of skilled consultants, also contribute to the understanding of public problems and the devising and implementing of policy solutions (Stoker and Evans, 2016). Assessing potential technical effectiveness requires analysis of hard and soft data as well as logic (Howlett and Wellstead, 2017). If data are available, they are rarely in a form that can answer the question definitively. As a result, practical reasoning is necessary to assess a tool's usefulness (Cairney, 2016).

Political Dimension

Instrumentality

In addition to the potential effectiveness of a policy in addressing problems, policy formulators must also be mindful of the politics of the issue. The political context within which problems are defined and solutions are searched, selected and applied is a vital determinant of what policies can or cannot achieve (Turnbull, 2017; Chindarkar et al., 2017). Problems are constructed and realities shaped by the interests and ideas of different actors maneuvering to define problems and solutions in ways that promote their own interests. All policies create winners and losers. It is therefore important that policy options are supported sufficiently by potential winners—or at least not opposed by potential losers so as to scuttle it.

At the minimum, a measure must be acceptable to the powerful segments of the government and society. At best, it must raise the government's popularity and legitimacy with the population. For the political policymakers in charge, this is understandably often the most important criterion. Whatever we may think of this from a moral perspective, in the real world the needs of the political masters are a vital consideration in policy design. Ideally, however, concerned

political policymakers would also bear other objectives in mind while pursuing their political objectives.

Politicians are the most critical actors in the policy process, and so the proposed solutions must be acceptable to them. Their primary motivation is to attain and maintain office, so the measure should, by and large, not undermine their electoral fortunes (Flora and Heidenheimer, 1981; Overbye, 1994). The likely response of powerful interest groups (e.g., business and labor unions) and media to a policy tool is also important, because their stance affects the decisions made and implemented (Ramesh, 2008).

Political viability asks whether or to what extent a proposed policy alternative will be acceptable to relevant powerful groups, decision-makers, legislators, administrators, citizens and others. Is the proposed alternative acceptable to policymakers, policy targets, the general public, voters, etc.? Is the proposed alternative appropriate to the values of the community, society, the legislature, etc.?

Design Capacity

The overall political context and the political skills of policy officials affect policymaking and must therefore be considered in policy design. Particularly important is the lead agency's public engagement resources and skills. Robust public engagement allows agencies not only to better understand problems and potential solutions, but also allows them to implement the chosen solutions more effectively. The overall level of trust in government affects agencies' performance and needs to be factored into policymaking. Complex reform requires not only that the policy tool/instrument used be socially and politically acceptable, but also that the implementing agency have the political capacity to reconcile differences amongst stakeholders.

Operational Dimension

Instrumentality

Policy solutions need to work on the ground, not only in abstract—'in theory'—unlike problems in the realms of philosophy, pure mathematics and theoretical economics, wherein solving problems is largely an intellectual exercise. Practical operational concerns must therefore weigh heavily with policy designers. Policy tools that cannot be operated or are difficult to operate need to be avoided because they impede implementation. 'Good policy, poor implementation' is a common explanation for failed policies. A good policy design would anticipate critical implementation difficulties, address them in the policy itself and reject them if that is found to be too expensive or difficult. Vital operational issues that need to be addressed during policy design include: Does a tool provide for enforcement of accountability? Does it provide sufficient incentives for improvement? Does it provide sufficient flexibility for re-calibration? Can the tools be employed within the planned timeframe? Simplicity of measures (fewer 'moving parts') is a virtue.

Howlett et al. (2015) and Howlett and Rayner (2013) underscore the importance of policy design to reflect and respond to contextual features of a particular sector. The policy design has to have a certain 'goodness of fit,' which ensures that policy instruments and their settings are compatible with governance styles as well as the broader political context. Similarly, designers are constrained by the 'degrees of freedom'—the extent to which path-dependent policy and program choices made restrict the range of feasible options available to designers. While designers would like to work with unlimited degrees of freedom, in reality incremental changes over time caused by recalcitrant layering, patching and stretching reduce the flexibility of designers (Howlett et al., 2015; Howlett and Rayner, 2013).

The term 'second-best' can be used in a generic sense to explain an outcome that is ranked less than ideal, but it also has a technical meaning. Under specific assumptions, in the *Theory of the Second Best*, Lipsey and Lancaster (1956) show that removing distortions from a particular sector, while letting them continue in a related sector, can be welfare decreasing rather than Pareto-improving. Therefore, policy design must be cognizant of the 'second-best' principle—that perceived welfare-improving interventions can actually distort the allocation of resources further. This consideration would require coordination in policy design and ensuring that changes to design maximize complementary effects (Gunningham et al., 1998).

Policy design must also cater to program-specific parameters. A useful synthesis of this is available in the 'rules' of institutional design postulated by Ostrom (2011). *Boundary rules* determine who is covered by a program and under what conditions; *scope rules* list out the activities covered under the program; *choice rules* list out the various options available to actors; *information rules* dictate the information available; and *payoff rules* deal with issues related to compliance and monitoring. This program-level criterion is by no means exhaustive, but it is a good representation of the wide range of parameters that will impact outcomes and therefore must be incorporated in policy design.

Design Capacity

The making and implementing of policies to address problems involves major managerial activities. Policy managers need skills in leadership, negotiations, conflict management and so on. The level of skills available in agencies affects the agencies' ability to make and implement policies and must be taken into account while designing policies. More important, the policy process need to be backed by a robust management system. Given the complexity of contemporary policy problems, public agencies require a system for coordinating the diverse activities that are aimed at addressing problems. They also require a system for managing finances, personnel and performance. The lead agency's reputation and its linkages with civil society and other government agencies additionally affect their policy performance.

Customization in Formulation: Distinguishing Bespoke and Off-the-Shelf Design

Traditional policy formulation studies often thought of design as the wholesale replacement of old portfolios to make way for an entirely new package of policy elements. The notion of devising customized responses to policy problems has always been prevalent in policy design studies, but in the past, this tended to happen without a discussion of the different degrees of customization that design processes can follow to accommodate for different contexts and past policy legacies.

Two general forms of customization in policymaking have been discussed in the policy studies literature. First, the systematic arrangement of policy elements, reflecting policy planning and bespoke policy formulation, was a topic of discussion for early design theorists who took a systems approach to policymaking. This approach to policymaking came to be heavily debated given the acknowledgment that most policy problems are complex or 'wicked' and the formulation of new solutions for such problems cannot take place without situating policy design in the relevant context (Rittel and Webber, 1973). In other words, policy optimization for wicked problems—or the perfect mapping of policy goals to means—can rarely be achieved in absolute terms and can only be feasibly addressed with solutions that are embedded within a particular policy context.

Another strand of the literature on policy transfer and policy diffusion, relying on models of incremental policymaking, conjectured that policymakers dealing with wicked problems can

look for decision-making shortcuts or can emulate other states with similar policy situations by adopting existing, off-the-shelf policies (Lindblom, 1965; Walker, 1969; Bennett, 1991). Emulation of policies can also help maintain comparative advantages. Welfare policies, for example, may be copied by neighboring states in order to avoid immigration (Berry and Baybeck, 2005). In other situations, coercive institutional pressures may lead states to adopt best practices from other states, and this institutional isomorphism may become a significant mechanism to gain legitimacy (DiMaggio and Powell, 1983; Radaelli, 2000). For policy scholars researching policy adoption as a form of innovation, these strands of literature point to a growing recommendation to "de-emphasize the global concept of innovativeness on a wide range of policies and focus attention on explaining the propensity of states to adopt specific policies or programs" (Berry and Berry, 2007, p. 247). That is, policy design may be characterized by customized or off-the-shelf policy programs or more micro-level mechanisms rather than the wholesale repackaging or adoption of entire policy logics.

Both types of customization that look to instill new policy elements—bespoke programs and off-the-shelf application of standard mechanisms and best-practices—can occur together in several policy contexts. To take the example of environmental policy, scholars have noted the conscious choice that governments make between either creating new feedback mechanisms or activating more automatic, pre-set mechanisms to deal with the peaks or troughs of economic activity that reduce or enhance environmental protection. Similarly, redesigning land use patterns based on evolving environmental criteria can also require a policy rethink on the part of jurisdictions that may choose to tailor new policies instead of adapting existing planning models (Breheny, 1992). This has been articulated by Button (2002) for the patterns found for urban development policy design as environmental and economic systems change (p. 229):

> Feedback mechanisms can take a variety of forms. Some of these require individual, case-by-base actions brought about by policy makers and are often in response to general movements in the key indicator of some kind . . . these may be seen as 'bespoke-feedbacks'. Other feedback mechanisms, however, are automatic. They require no particular action on the part of law makers, but rather reflect a system reaction to evolving conditions—an 'off-the-peg' policy approach.

Bespoke design, or the formation of a *de novo* policy package, in response to a perceived policy problem indicates the highest level of customization in policy design where each policy element in the package—be it a mechanism or a policy instrument—can be constructed anew. Understandably, this heightened degree of customization very rarely takes place. Where bespoke policymaking is explored empirically, it is almost always at the level of policy mechanisms or settings. It typically includes recommendations for creating new elements, which represent the more micro-level aspects of policy instrument design (Rayner and Howlett, 2009; Williams and Nadin, 2012, 2014). Williams and Nadin (2012), for example, call for the creation of bespoke policy measures and not off-the shelf instruments, to reduce the barriers in formal industry sectors that disallow the entry of present informal, 'hidden' entrepreneurship that can enhance economic development.

Off-the-shelf policy design represents the more common customization scenario whereby governments engage in some degree of non-incremental, novel innovation rather than marginally modifying existing policy programs. This reflects the main focus of policy innovation scholars, who surmise that

> when people speak of innovation in common parlance, they usually refer to the introduction of something *new*. But, when should a government program be termed 'new?'

> The dominant practice in the policy innovation literature is to define an innovation as a program that is new to the government adopting it.
>
> *(Berry and Berry, 2007, p. 223, citing Walker, 1969, p. 881)*

Some scholars also point to the adoption of 'off-the-shelf' policies as a form of 'fast' policymaking, as opposed to the comparatively slower process of data collection, analysis and targeted recommendations for pure evidence-based policymaking (EBPM) (Stoker and Evans, 2016). Such solutions are espoused "when politicians are looking for quick, high-impact fixes to the problems they are facing" (Stoker and Evans, 2016, p. 18). Much of this form of policy adoption echoes what has come to be to known as policy *diffusion*, whereby state adoptions of policy programs are largely emulations of previous programs from other states (Walker, 1969; Berry and Berry, 1999; Berry and Berry, 2007).

Several examples of the distinction between bespoke and off-the-shelf designs appear empirically. In his study on policy innovation for regional economic development in Europe, Jeremy Howells (2005) attributes the characteristics of bespoke and off-the-shelf or 'best practice' policy to 'bottom-up' and 'top-down' policy approaches, respectively. Howells (2005) contends in his study that bespoke examples of economic innovation result from processes of packaging or 'reformulation' of individual economic policy, while off-the-shelf policies result from a more macro, inter-regional perspective when innovation has to link directly with national interests. As the experience with the UK has shown, this distinction can lead to several comparative characteristics, as are presented in Table 24.3.

Table 24.3 Bespoke vs Off-the-Shelf Design—A Comparison

'Bespoke' Policy	*'Off-the-Shelf' Policy*
Advantages	***Advantages***
• Developed for the specific locality and policy context	• Proven elsewhere
• Tailored for policy resources and available time-frame	• Acknowledged as the 'best'
• Encourages local coalition-building and development of expertise	• May have been developed over considerable length of time in different circumstances
• Can be novel	• Ready to use
• Agencies developing the policy can gain wider experiences through learning-by-doing	• May have 'knowledgeable' agency willing to help, provide advice and support
	• Not developed by indigenous 'clique' that knows best
Disadvantages	***Disadvantages***
• At the outset, the policy is unproven, as it is unique and has not been applied elsewhere	• Common design, may be difficult to adapt to local circumstances
• May take considerable length of time to develop and test	• 'Best practice' in what and for whom?
• May aggravate local tensions; local resources and expertise may be limited	• Locality may not have all prerequisite resources, institutions or mechanisms
• Generally higher risk	• May take time to adapt
• Agencies developing the policy may become inward-looking and unwilling to learn from elsewhere	• May be difficult to understand; may have a large tacit element associated with implementation

Source: Howells (2005).

Several advantages of bespoke policy design processes are similar to those commonly purported by proponents of realism and EBPM alike (Sanderson, 2002). Bespoke policy design can emerge out of and is tailored to a specific locality or policy context. Evidence and knowledge about the context is gathered through a process of constant trial and error, or 'learning by doing,' and results are directly applied to the creation of the policy response. As echoed by Rescher's (1998) recommendations for the needs for complexity-espousing assessments for policymaking, this form of design fully acknowledges that

> in situations of unmanageable complexity, practice in matters of public policy is often guided more effectively by localized experimental trial-and-error than by the theorizing resources of an intellectual technology unable to cope with the intricacy of interaction feedbacks and unpredictable effects.
>
> *(p. 189)*

As a result, bespoke policies that follow this logic of a specialized design can lead to policymakers gaining deep insights about the existing policymaking scenario through repeated experimentation and trial and error. The consequent bespoke policy element would be novel and aligned very closely with the policy problem context.

As summarized by Howells (2005), many of the challenges for bespoke policymaking are also a result of the time-intensive process of perfectly customizing a policy response. While such policy elements can be novel and uniquely suited to a policy context, their success in meeting policy needs effectively cannot be estimated before implementation. They can be riskier and costlier if they require several rounds of experimentation. Agencies engaging in high degrees of policy customization may also run the risk of policy myopia, whereby they actively resist any input or policy knowledge from elsewhere.

In contrast, off-the-shelf best practices that are emulated as-is have the advantage of being 'tested' in various circumstances before they are adopted into any particular policy design context. They represent quicker and more readily usable solutions for policymakers who are on the lookout to urgently address a policy issue. Instead of being exclusive and requiring a very specialized and contextualized set of expertise, off-the-shelf policies have a larger community of knowledgeable experts for support and advice. The disadvantages of such designs, however, include the fact that standardized designs may face significant challenges while being adapted to local contexts that may not have the necessary resources, capacities or institutions in place. As a result of any such shortfalls, off-the-shelf policy design may require a long time to become more suited to local policy realities.

Conclusion

Conceptually, a policy design process begins with an assessment of the abilities of different policy tools to affect policy outputs and outcomes and the kinds of resources required to allow the tools to operate as intended (Hood, 1986; Salamon, 2001). The process is unavoidably contextual in the sense that it requires an understanding of how the use of specific kinds of instruments affects target group behavior and compliance with government aims (Weaver, 2009, 2013, 2010). It thus includes knowledge and consideration of many constraints on tool use originating in the limits of existing knowledge, prevailing governance structures and other arrangements and behaviors that may preclude consideration of certain options and promote others (Howlett, 2009a, 2011). It requires both analytical and evidentiary capacity on the part of the government as well as the intention to exercise such capacity.

Transforming policy intentions into practice is a complex process. It can be effectively undertaken only by governments that have the requisite technical, organizational and political capacity (Wu et al., 2015; Howlett and Ramesh, 2016). Many noble policy efforts fail due to lack of capacity in one or more respects on the part of the policymakers. Broadly speaking, it is the relevant agencies' analytical capacity and the government's political capacity that shape policymakers' ability to set and achieve policy goals (Wu et al., 2015). Policy design is most productive when the government enjoys legitimacy and broad political support and has the organizational and analytical competences to formulate and implement their policy preferences. Agencies' competences allow the members involved in the policy process to identify and understand policy problems, canvass for solutions, assess and compare alternatives and evaluate the impacts of chosen policies (Howlett, 2009b; Howlett, 2015).

These capacities for design are fundamental for packaging, repackaging or installing off-the-shelf policy elements in response to a perceived policy problem. The degree to which policy solutions are thus customized is strongly linked to the various capacities that are highlighted in this chapter. The distinction between bespoke and off-the-shelf policy design closely resembles that between custom-made and standard computer software. The main difference lies in the latter being designed to be applied across a wide range while the former effectively tailor-fits the framework to specific requirements, a choice most policymakers grapple with in their endeavor to pursue purposive policy design.

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PART 6

Gauging Effectiveness in Policy Designs

25

GAUGING EFFECTIVENESS

First and Second-Best Policy Design

Ishani Mukherjee and Michael Howlett

Introduction: Effectiveness in Policy Design

The essence of policy design resides in the articulation of policy options expected to meet government goals. Not all policies are as well or as carefully formulated as they could be, however, and policy studies has been interested for several decades in understanding why policy alternatives are developed, why some are successfully adopted while others are not and how some policies emerge from carefully crafted formulation processes while others are more heavily influenced by other processes such as political, partisan or electoral or legislative bargaining (Howlett, 2011). Why design occurs and how superior designs can be achieved—either all at once or over time—in complex issue areas are outstanding topics in contemporary formulation studies (Howlett and Mukherjee, 2014; Howlett, 2014).

Policy 'design' per se is a process that falls on the more purposive and instrumental end of the formulation spectrum but entails the same issues of feasibility and acceptance of specific options or alternatives as do all other kinds of formulation processes. That is, design entails the deliberate endeavor to link appropriate policy tools with clearly articulated policy goals (Majone, 1975; Linder and Peters, 1984; May, 2003; Bobrow, 2006), This task involves the systematic effort to marshal evidence and knowledge in order to analyze the impacts of policy instruments on policy targets, as well as the application of this knowledge to the creation and realization of policies that can reasonably be expected to attain anticipated policy outcomes (Weaver, 2009a, 2009b; Bobrow and Dryzek, 1987; Sidney, 2007; Gilabert and Lawford-Smith, 2012). Such activities, however, assume that feasible or realizable alternatives will be generated through the formulation and design processes and that such alternatives will emerge triumphant in subsequent political and other deliberations and conflicts involved in public policy decision-making. This is often not the case.

To date, the research emphasis on policy design as a problematic and often conflict-laden process of policy formulation has focused on 'intra-design' issues and questions such as those exploring the tradeoffs and interactions between the various tools of governance used in policy 'toolkits' and the need to manage their inherent complementarities as well as their contradictions and overlaps (Gunningham et al., 1998; Howlett, 2014). These studies have emphasized factors such as the different processes and patterns through which policy toolkits have developed over time by being layered on past design decisions (Thelen, 2004; Howlett and Rayner, 2013) as

often resulting in less 'rational' mixes of policy tools than might originally have been desired or planned.

This focus on policy mixes, layering and temporality, and their impact upon optimizing design choices, differentiates the existing design literature from earlier approaches that examined aspects of policymaking, and especially policy tool selection, by concentrating on simple policy contexts and the selection of singular tools in a theoretically optimum environment (Linder and Peters, 1990; Salamon, 1989; del Rio and Howlett, 2013). This new focus on sub-optimality has added an important set of new dimensions to the issues of "who designs what, when and how" (Howlett, 2011). That is, this approach to understanding and making public policy has helped integrate not only a solid understanding of policy processes but also a deep understanding of the characteristics of policy tools and how they operate both singly and in tandem with others in complex and difficult policy environments.

Currently, this work has focused on process issues and added this dimension to what constitutes a good or effective design. As a consequence, it allows us to deal with questions regarding what are 'ideal' or 'first-best' or 'optimal' policy designs and how these can be distinguished from more 'second-best' or 'real-world' design situations. Discussion of this latter topic is a largely scattered body of knowledge in policy studies, presenting a significant opportunity to draw lessons on what 'effectiveness' means for the multiple levels of design, ranging from abstract policy goals and instrument logics that inform the policy design environment to the more specific mechanics of policy programs and toolkits that match particular policy objectives to individual tool settings. This chapter deals with both these issues and questions and aims to add to the corpus of knowledge available in the policy sciences on these subjects.

The Policy Design Frame of Analysis

Effectiveness, in the context of policy design, can be understood at multiple levels of analysis, reflecting the complexities that are embodied in any particular design situation. The first is at the level of what constitutes 'effectiveness' in theory and practice. The second deals with the broad indication of what entails an effective formulation space that is conducive to design. And a third related issue is how tools can work together and how policy tool mixes can be effectively constructed to address complex policy goals. Every design situation can then be thought of as a particular domain of actors, institutions and capacities, which prescribe the expected interactions of instruments with each other as constituted by a particular design space. The first issue has been discussed above. Each of the second and third aspects of effective design are set out below.

Differing Types of Design Spaces: Effective Political Scenarios and Capacity Endowments

One major area of concern for contemporary policy researchers is the understanding and demarcation of effective design spaces that allow such deliberations and debates to occur (Howlett, 2011). As early as 1991, Linder and Peters (1991) suggested that policy design could be thought of as an area of study oriented towards the understanding of such spaces. That is, they noted that design was "a systematic activity composed of a series of choices . . . design solutions, (which) will correspond to a set of possible locations in a design space" and that "this construction emphasizes not only the potential for generating new mixtures of conventional solutions, but also the importance of giving careful attention to tradeoffs among design criteria when considering instrument choices" (Linder and Peters, 1991, p. 130).

The idea is that each design situation involves identifying a small subset of all the possible tools that could be used to implement policy, and that the nature of the overall policy design space can have a significant bearing on how effectively intended design activities take place—and thus upon the likely effectiveness of policy designs that emerge from them. These spaces are delimited and characterized by on-the-ground political realities that shape overall public and elite preferences for certain kinds of tools and mixes over others, for example market-based portfolios over state-based ones. Policy design processes, for example, are embedded within, and their effectiveness is delimited by, prevailing modes of governance. The style of governance in place during a design event defines the outer limits of the policymaking milieu within which design can unfold and presents a distinct set of considerations that can determine the relative level of policy effectiveness that is possible. For example, Ansell and Gash (2008) indicate several variables that are critical for effectiveness within modes of collaborative governance, including reconciling with "prior history of conflict or cooperation, the incentives for stakeholders to participate, power and resource imbalances, leadership and institutional design" (p. 543).

Thinking about design effectiveness, in this sense, thus begins with an understanding of how the policy design space influences the kinds of policies that are envisioned and how such envisioning takes place. A contemporary understanding of such spaces is that they represent unique political conditions that affect whether or not, and to what extent, policy changes follow a design-oriented pattern of analysis and deliberation on goals and means, and whether design is likely to occur by whole measures ('packaging') or in part ('patching') (Howlett and Rayner, 2013; Howlett and Mukherjee, 2014).

That is, in any specific design circumstance, whether or not 'design' takes place at all, and how open it is to innovation and change, can be seen to depend on the political aims and intention of the government deciding whether or not to undertake systemic thinking on a subject, for how long and to what degree. Defining policymaking spaces that are conducive to design involves constructing an inventory of potential public capabilities and resources that might be pertinent in any problem-solving situation. This is a critical step in any formulation situation (Anderson, 1975) but can be taken in a more or less formal, analytical fashion. But even having an intention to be formal and analytical in designing and evaluating policy alternatives is not enough in itself to promote a design-centered process, because this process also depends on the government's ability or capacity to undertake such an analysis and to alter the status quo. In many circumstances, even when an intention for open and innovative design is present, capacity difficulties associated with a design situation result in the creation of alternatives that 'patch' rather than package tools together in coherent and consistent ways.

Arranging Policy Instruments in Effective Instrument Mixes

While considerations for the design environment's impact on effective formulation has been covered in the research agenda of policy instrument studies in recent years, a greater emphasis on tool mixes and on the processes that effectively create complex policy tool bundles out of individual policy instruments has also been a feature of research over the last decade (Hood, 2007; Howlett, 2011). These studies have increased awareness of the many dilemmas that can appear in the path of effective policy tool or 'toolkit' designs and realities (Peters and Pierre, 1998; Klijn and Koppenjan, 2012; Doremus, 2003; Sterner, 2003).

Classic works on policy instrument choice such as those by Salamon, Hood, Peters and others laid the initial groundwork towards grasping how effectiveness is embodied in singular instruments. In the early 1980s, scholars and practitioners focused on more precisely categorizing policy instruments and better analyzing the reasons for their use (Salamon, 1981). Such a careful

examination of instruments and instrument choices was expected to allow practitioners to more readily draw lessons from the experiences of others by using particular techniques in specific circumstances, leading to more effective designs (Woodside, 1986; Bobrow and Dryzek, 1987; Dryzek and Ripley, 1988; Linder and Peters, 1984).

The key information instrument studies needed to generate in order to help facilitate better policy design include:

1. What tools does a government have?
2. How can these be classified?
3. How have these been chosen in the past?
4. Is there a pattern for this use?
5. How can we explain these patterns?
6. And how can we improve on past patterns of use?

(Salamon, 1981; Timmermans et al., 1998; Hood, 2007)

To add to and expand on these singular tool considerations, the new orientation in policy design studies, through the 2000s, has led to the emergence of a multi-level focus on multi-instrument mixes and their components (Howlett et al., 2015). This new 'toolkit' design emphasis on policy mixes or portfolios of tools can be distinguished from earlier studies that focused on single tool choices in simple (time and space delimited) policy contexts (e.g. Linder and Peters, 1988, 1990). The new design orientation focuses on (1) bundles or portfolios of tools and the interactive effects that occur when multiple tools are used in policy packages designed to address multiple goals (Oikonomu et al., 2011; Givoni et al., 2013); and (2) upon more complex multi-policy and multi-level design contexts and processes (Oikonomu and Jepma, 2008; Del Río et al., 2011). As such, the new design orientation deals with questions that the earlier literature neglected, such as the tradeoffs between different tools and how to deal with the synergies and conflicts that result from these interactions (Oikonomu et al., 2011; Braathen, 2007; Hou and Brewer, 2010).

The above evaluations of policy formulation indicate that a collection of instruments working together to attain specific policy objectives can be more efficient than individual tools (Gunningham et al., 1998). Some categories of instruments may be easily compatible with others, such as self-regulation mechanisms working together with compliance regimes (Grabosky, 1994; Trebilcock et al., 1979), while other portfolios, such as those combining independent subsidies with existing regulations, may not be as readily combinable.

Effective combinations of multi-level policy elements has been a central topic of investigation in policy design studies (Gunningham et al., 1998; Doremus, 2003; Briassoulis, 2005; Howlett, 2011; Yi and Feiock, 2012; Peters et al., 2005; Jordan et al., 2011, 2012, del Rio and Howlett, 2013). Information regarding the interactions between different levels of instrument aims and means, and how they grow over time, is a key necessity for informing effective instrument choice. For example, a major concern of those working in the new orientation of policy design studies is whether combinations of different policy instruments, which have evolved independently and incrementally, can accomplish complex policy goals as effectively as more deliberately customized portfolios (Howlett, 2014).

In order to investigate such combinations of policy instruments, a first step is to break down the framework of policy design into its constituent parts and focus on how they interact. That is, the various components (goals, instruments and calibrations) of a policy should be seen as being parts of an overall mix of policy instruments. These elements of policies that are combined in the design process include those related to general goals and means, those linked to tools and those linked to the settings or calibrations of those tools (see Figure 25.1).

	Policy Content		
Policy Content	**High Level Abstraction (Policy-Level)**	**Operationalization (Program-Level)**	**On-the-Ground Specification (Measures-Level)**
Policy Ends or Aims	**POLICY GOALS What General Types of Ideas Govern Policy Development?** (e.g. environmental protection, economic development)	**PROGRAM OBJECTIVES What Does Policy Formally Aim to Address?** (e.g. saving wilderness or species habitat, increasing harvesting levels to create processing jobs)	**OPERATIONAL SETTINGS What Are the Specific On-the-Ground Requirements of Policy?** (e.g. considerations about sustainable levels of harvesting)
Policy Means or Tools	**INSTRUMENT LOGIC What General Norms Guide Implementation Preferences?** (e.g. preferences for the use of coercive instruments, or moral suasion)	**PROGRAM MECHANISMS What Specific Types of Instruments Are Utilized?** (e.g. the use of different tools such as tax incentives, or public enterprises)	**TOOL CALIBRATIONS What Are the Specific Ways in Which the Instrument Is Used?** (e.g. designations of higher levels of subsidies, the use of mandatory vs voluntary regulatory guidelines or standards)

Figure 25.1 Components of a Policy Mix and the Position of Policy Programs Therein

Source: Howlett and Rayner (2013, p. 8).

The components of such mixes include policy goals and policy means at various levels of generality (Howlett, 2009; Kern and Howlett, 2009; Cashore and Howlett, 2007). Design and instrument selection in these contexts "are all about constrained efforts to match goals and expectations both within and across categories of policy elements" (Howlett, 2009, p. 74) while displaying 'coherence,' 'consistency' and 'congruence' with each other (Howlett and Rayner, 2007).

Works on 'smart regulation' by Gunningham et al. (1998) have led scholars to focus on how instruments within a policy mix or 'portfolio' could effectively complement each other or conversely, result in conflicts. Such work has led to the development of guidelines for the formulation of more sophisticated policy designs in which complementarities are maximized and conflicts avoided (Buckman and Diesendorf, 2010; Roch et al., 2010; Barnett and Shore, 2009; Blonz et al., 2008; del Río et al., 2010). Questions also relate to how some combinations may be redundant and not achieve new targets, while other combinations, albeit repetitive, may be beneficial in promoting resiliency and adaptiveness (Braathen and Croci, 2005; Braathen, 2007; Swanson et al., 2010; Walker et al., 2010).

Concerns regarding how to make the most of policy synergies while curtailing contradictions in the formulation of new policy packages are a major topic of investigation within the new design orientation (Hou and Brewer, 2010; Kiss et al., 2012; Lecuyer and Quirion, 2013). For example, evidence from the world over concerning renewable energy and energy efficiency policy, due to climate change mitigation and energy security concerns, has revealed that policy packages combining voluntary compliance with command and control regulation can be inherently inconsistent, bringing out contradictory responses from targets of these policy combinations (Del Río et al., 2011, Boonekamp, 2006).

Scholars of the new orientation who are concerned with design effectiveness, however, have also been interested in looking at with how 'unintended' policy mixes, created and limited by historical legacies, can be hampered due to internal inconsistencies, whereas other policy instrument groupings can be more successful in creating an internally supportive combination (Howlett and Rayner, 2007; Grabosky, 1994; Gunningham et al., 1998; Del Río, 2010).

Studying complex design spaces that involve multiple instruments and goals is concerned with better understanding the temporal processes through which these spaces evolve. While earlier studies largely suggested that effective design can only occur in spaces where policy packages could be designed 'en bloc' and 'de novo,' the new orientation recognizes that most design circumstances involve building on the foundations created in another era and working with sub-optimal design spaces. New policy design scholars are thus interested in processes such as how policy formulators, like software designers, can issue 'patches' in order to correct flaws in existing mixes or allow them to adapt to changing circumstances and become more effective (Howlett and Rayner, 2013).[1]

In addition to questions relating to the integration of policy tools, the evolution and history of policy tools are also of concern to those interested in policy effectiveness. In general, policy formulation is seen to take place contained within present governance structures and the existing policy logic. Such contexts restrict the number of alternatives that can be deemed feasible and decrease the universe of policy alternatives to a smaller sets of workable possibilities (Meuleman, 2009a, 2009b; Christensen et al., 2002). The 'elbow room' or 'degrees of freedom' that designers have to maneuver in given policy design contexts is thus a subject of much interest. Studies draw on the work of historical and sociological neo-institutionalists such as Kathleen Thelen (2003, 2004), who noted how macro-institutional arrangements have normally been less the product of calculated planning than the result of processes of incremental modifications or reformulations such as 'layering' or 'drift.'

Contemporary research also asks questions regarding how some policy mixes may be comprised of redundant, duplicate elements while others, despite containing repetitive elements, may in fact promote resiliency and adaptiveness (Braathen and Croci, 2005; Braathen, 2007; Swanson et al., 2010; Walker et al., 2010). In their discussion of policy element duplication, Hou and Brewer (2010) have noted that the real issue is not to simply eliminate all duplication on *a priori* grounds but rather to design policy toolkits containing tools that work together or complement each other while being effective given stated goals and policy contexts (Hoffman, 2011; Swanson et al., 2010).

Effectiveness in Policy Design: 'First' Versus 'Second-Best' Design Modalities

Contemporary policy design studies and practices all illustrate how individual instruments are chosen within specific kinds of formulation spaces and how they are constrained by the particular historical legacies of existing policy instrument mixes and past policy priorities. In understanding policy design in this way, a distinction can be made by first conceptualizing *ideal* design situations that have the best mix of capacities and resources while lacking historical constraints. Following this, such 'first-best' design and designing can be differentiated from other situations that are 'second-best' in comparison. Gauging *effectiveness* in the design sense then becomes about distinguishing between these 'ideal' or 'first-best' configurations of policy goals and means—which link design processes and outcomes—and other situations that are decidedly sub-optimal and typically lead to sub-optimal designs and outcomes (Figure 25.2).

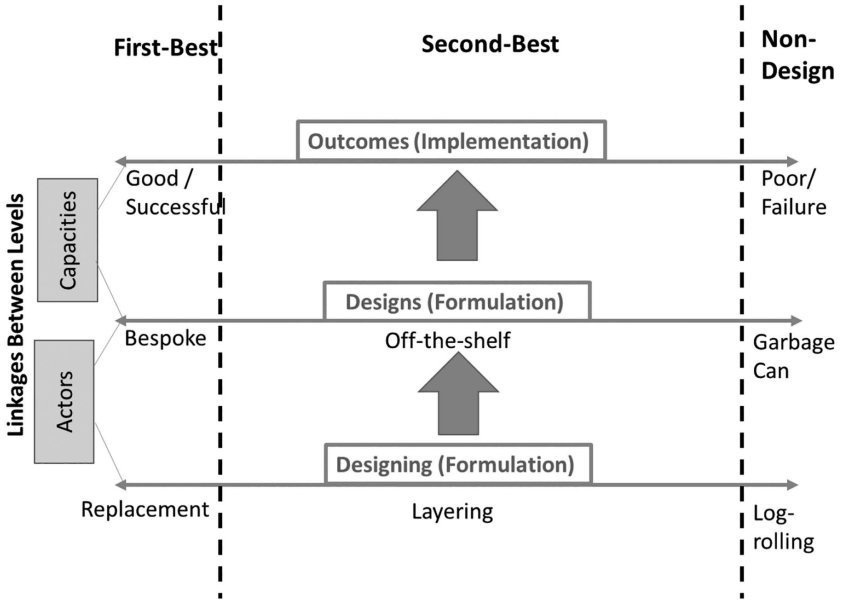

Figure 25.2 First-Best and Second-Best Policy Design

It is important to draw this distinction in design studies, especially because the majority of policy design processes that unfold do not reflect ideal scenarios. Having an idea about what an archetypical instrument or instrument mix can theoretically look like if it is forged out of the most optimal design circumstances provides a perceptible baseline. In the more common 'second-best' design situations, having this reference allows policymakers to examine deficiencies and map the structure of the means necessary to address them.

Effectiveness in the design can thus be related to process, output or outcomes. When coherently thought of together, these aspects of policymaking can be engineered to promote either first-best (theory-inspired) or second-best (real world) solutions in order to avoid more sub-par 'non-design' formulation activities (Figure 25.2). Such a differentiation allows one to conceptually bridge the stages of formulation and implementation in the policy process, as the optimality of the policy design circumstance has a direct impact on the effectiveness of its stated outcomes.

First-Best Policy Design

The first aspect of policymaking that can be used to understand optimal formulation is by conceptually distinguishing between the artifact and the act of policy design. In other words, separating out the verb 'to design' from the noun 'design.' In their many works on the subject in the late 1980s and early 1990s, for example, Stephen H. Linder and B. Guy Peters (1988) argued that the actual process of public policy decision-making could, in an analytical sense, be divorced from the abstract concept of policy design, in the same way that an abstract architectural concept can be divorced from its engineering manifestation in theory if not in practice. Such a distinction, they argued, allowed policy design (as a noun) to be separated conceptually from policy design (as a verb) and allowed for the development within policy studies of a design orientation (Schön, 1988, 1992).

This analytical separation of policy design is shown as the two continuums representing 'designing' versus 'design' in Figure 25.2. When it comes to the act of formulation, designing can unfold through a range of processes, whereby on one end there is conceptually the most optimal situation of *replacement* or *packaging* and on the other, there are more erratic or contingent modes of formulation or 'non-design.' Optimal replacement processes can in turn yield targeted bespoke policies that are best able to realize stated outcomes. On the other end, non-design formulation that is closer to pure, disjointed incrementalism can generate policies that result from garbage-can style processes, thereby leading to poor outcomes during implementation.

Most ideal forms of design can be thought to emerge out of propitious scenarios where all relevant policymaking capacities, resources and government intention are present and aligned. In dealing with new policy issue areas, as often occurs in high-technology areas such as genomics or nano-technology, such 'first-best' scenarios can also be characterized by a lack of historical policy tool legacies and relative flexibility for innovation, thus presenting policymakers with a formulation *tabula rasa*.

Such ideal policy design spaces have additional prerequisites—for example, high technical capacity for policy analysis on the part of key policy actors, especially government, which is required to facilitate the effective matching of policy means to goals (Howlett, 2009, 2011). Without such pre-conditions, despite the best government intentions, poor designs can result either from incomplete knowledge or via less technical and more overtly political forms of policy formation that substitute different goals or criteria for optimality.

Second-Best Design Scenarios

Looking back at Figure 25.2, 'first-best' design scenarios are marked by processes of policy replacement or packaging whereby the design space allows for the largest choice of alternative tools and design components, and there is low historical tool lock-in during the devising of policy mixes. Such processes are then able to customize bespoke policy tools and tool mixes that are able to accurately and completely match the stated goals and objectives, leading to the most favorable policy outcomes. On the part of policy actors, who lead efforts to effectively match policy means with desired policy outcomes, this means "discarding a priori preferences for markets or governments and instead be[ing] open to select a range of policy tools targeting different problems" (Bali and Ramesh, 2017, p. 1). That is, the tools being devised must make sense within the context they inhabit and need to be customized to the particular set of conditions created by the specific combination of barriers and capabilities in each domain or jurisdiction. These considerations echo the new design orientation, that devising customized policy tools and means necessitates a capacity to complement text with context (Lejano and Shankar, 2013) and that identifying the limits and prospects afforded to designers within the existing policy design space is not simplistic.

In order to enable this first-best design scenario, the government actors and their design capacities must exhibit a strong ability to alter the status quo, along with a dedicated aim and intention to undertake systemic thinking on the topic at hand. Determining exactly what capacities are required in order to effectively carry out complex design processes is a subject of much interest in the field today (Considine, 2012). In order to bring about effective policy formulation, it is recognized that policy designers need to be cognizant about the internal mechanisms of their polity and constituent policy sectors that can boost or undermine their ability to think systematically about policy and develop effective policies (Braathen and Croci, 2005; Braathen, 2007; Grant, 2010; Skodvin et al., 2010).

Recent work on policy capacity has outlined the fundamental nature of the skills and resources governments need to effectively formulate and implement policy (Howlett and Ramesh, 2015a, b; Wu et al., 2010; Rotberg, 2014; Bullock et al., 2001). These exist at three levels: individual, organizational and systemic (Wu et al., 2015).

Individually, those striving for effective design need to possess technical expertise for substantive policy analysis and communication of knowledge. Necessary skills of those in management roles also include leadership and negotiation expertise, as well as individual political acumen for understanding the interests of various stakeholders and gauging political feasibility. At the *organizational* level, information mobilization capacities to facilitate policy analysis, administrative resources for successful coordination between policymaking agencies and political support all contribute towards overall policy capacity. At the *system* level, institutions and opportunities for knowledge creation and use must exist alongside arrangements for accountability and securing political legitimacy.

In general, governments would like to enjoy high levels of all aspects of capacity in order to effectively perform their policy design functions. While shortcomings in one or a few of the dimensions may be offset by strengths in other dimensions, no government can expect to be capable if lagging in many dimensions (Tiernan and Wanna, 2006). At the extreme, for example, governments finding themselves overburdened with economic problems or social demands may find that 'hierarchical governance'—that is, a policy framework whereby the most important actors are governments and the state implements policies by ordering and sanctioning—may no longer prove to be efficient or effective, removing consideration of such tools from design thinking in that jurisdiction or sector.

Shortfalls in capacity are especially critical in specific modes of governance and constitute their Achilles' heel (Menahem and Stein, 2013) when it comes to effectively creating policy solutions for different policy problems. For example, as was pointed out at the outset, in recent years the default reform often adopted in practice by governments seeking to improve upon hierarchical governance has been to turn to a market or network mode of governance (Weimer and Vining, 2011). In order to function effectively, however, markets require tough but sensible regulations that are diligently implemented. These are conditions that are difficult to meet for many governments and in many sectors due to lack of sufficient analytical, managerial and/or political competences and capabilities.

Technical knowledge is thus a critical competence required for market-based governance. Analytical skills at the level of individual analysts and policy workers are key, and the 'policy analytical capacity' of government needs to be especially high to deal with complex quantitative economic and financial issues involved in regulating and steering the sector and preventing crises (Rayner et al., 2013). Similarly, design within legal systems of governance requires a high level of managerial skills in order to avoid diminishing returns with compliance or growing non-compliance with government rules and regulations (May, 2005). System level capabilities are especially crucial in this mode of governance because governments will find it difficult to undertake command and control activities in the absence of the target population's trust. And while network governance may perform well when dealing with design for sensitive issues such as parental supervision or elderly care (Pestoff et al., 2012), in other instances civil society may not be well enough constructed or resourced to be able to create beneficial network forms of governance (Tunzelmann, 2010). Networks, for example, will fail when governments encounter capability problems at the organizational level such as a lack of societal leadership, poor associational structures and weak state steering capacities (Keast et al., 2006; Klijn and Koppenjan, 2012).

With these conditions of optimal packaging of policy components worked into a bespoke policy instrument mix and with the alignment of policy actors with the necessary capacities, it can be expected that the resulting policy is best able to yield favorable outcomes at the implementation stage.

Much of the discussion on 'first-best' design echoes the early design studies focus on what can be termed '*replacement*,' in which an existing policy is scrapped and a new one adopted in its entirety. However, this is not a common event. Much more common than the complete replacement, packaging or re-packaging of policy portfolios in pristine design environments is some process of policy accumulation where some aspects of a policy are layered on top of pre-existing ones and thus are inherently sub-optimal or 'second-best.' In such situations of significant policy legacies—where policy layers have built up over time—formulators often attempt to 'patch' or restructure existing policy elements rather than propose completely new alternative arrangements. As formulation studies focusing on the temporality of choices and alternatives have noted, most design situations call for optimizing the choice of instruments when a pre-existing mix exists (van der Heijden, 2011). Hence a key distinction among design formulation processes concerns whether they involve developing a new policy mix to entirely replace an existing one or if they (merely) involve 'patching' it to better match changing circumstances (Howlett and Rayner, 2013).

While first-best scenarios can be conceptualized to provide a baseline for policy design effectiveness, empirical experience has generally shown that policy designers have to work in second-best scenarios with already established policy mixes with significant policy histories.

In terms of policymaking 'layering' can indicate a simple addition of new policy components to existing policy foundations. As mentioned previously, this connotes that previous, and sometimes obsolete elements may not be discarded and policies can accumulate (Carter, 2012).[2] This kind of accretion informs the underlying logic of policy 'patching' (Howlett and Rayner, 2013).

Conclusion: A Multi-Level Analysis of Effectiveness in Policy Design and How It Is Achieved (or Not)

In essence, effectiveness in policymaking surrounds how well, how deliberately and how systematically knowledge is applied to elicit policy means to reach a stated policy outcome. On the part of the government, it presumably means delivering on some expectations and desires in a way that actually accomplishes what governments are setting out to do. To echo the 'What Works' principle informing British public administration, effective policy formulation entails "government to make policy in a fundamentally different way: deliberatively testing variations in approach, vigorously evaluating and stopping things that don't work."[3]

With the aim of policy design being to alter aspects of government or target groups' social actions, most of this process can involve tools that lead to behavioral modifications of different kinds of groups of actors. In this light, the effectiveness aspect relates to answering questions about how to construct a policy tool or toolkit that can accomplish the kind of behavioral modifications that are socially desirable. As discussed in this chapter, policy designers can choose from a variety of different tools to accomplish their goals, with some tools that are coercive in nature and others that are more persuasive. As a result, the interesting question for those trying to gauge what effective design is becomes how these different flavors of instruments, instrument settings and calibrations can combine to achieve what the government wants in terms of the behavioral modifications of society. To begin to answer this question, it is important to have some idea of what an ideal process and result of design should look like in different contexts and how close actual policy formulation can align itself with best practices.

Notes

1. In this context, the new design orientation is also interested in subjects such as policy experiments that can help to examine the possibilities of re-design (Hoffman, 2011) and in how building in temporal properties in tool mixes—adaptive policymaking (Swanson et al., 2010)—can make them more flexible or resistant to shifting conditions (Walker et al., 2010; Haasnoot et al., 2013).
2. Layering is a concept developed in the neo-institutional sociological literature by some of its leading figures, such as Béland (2007), Thelen (2004), Hacker (2005), Béland and Hacker (2004), to explain the pattern through which social and political institutions have evolved over long-periods of time.
3. www.gov.uk/government/publications/what-works-evidence-for-decision-makers

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26

COHERENCE, CONGRUENCE AND CONSISTENCY IN POLICY MIXES

Michael Howlett and Jeremy Rayner

Introduction: Policy Portfolios and Policy Design

Public policies are the result of efforts made by governments to alter aspects of behavior—both of their own agents and of society at large—in order to carry out some end or purpose. To do so, they are comprised of complex arrangements of policy goals and policy means. These efforts can be more or less systematic, and the ends and purposes attempted to be attained are multifarious and wide-ranging (Dryzek and Ripley, 1988; Linder and Peters, 1990). Thus, policy design encompasses both the means or mechanisms through which policy goals are given effect and the goals themselves, because goal articulation inevitably involves considerations of feasibility or what is practical or possible to achieve in given conjunctures or circumstances with the means at hand (Majone, 1975; May, 2005; Gilabert and Lawford-Smith, 2012).[1]

In some circumstances, some policy decisions will be more highly contingent and 'irrational,' that is, driven by situational logics and opportunism rather than careful deliberation and assessment, than others (Kingdon, 1984; Cohen, March and Olsen, 1972, 1979; Dryzek, 1983; Eijlander, 2005; Franchino and Hoyland, 2009).

Should all—or any—of these efforts be thought of as embodying a conscious 'design'? In most cases, the answer is 'yes.' Even when the goals pursued are questionable or when the knowledge or the means utilized to achieve them are much more ad hoc and much less systematic than might be desired, as long there is a desire for effective resource use in goal attainment, policymaking will involve some effort at design. However, this does not mean that all designs are created equal or generate equally successful results. The systematic study of policy designs and design processes is required for the field to advance (Cahill and Overman, 1990; Linder and Peters, 1990).

In their many works on the subject in the late 1980s and early 1990s, for example, Stephen H. Linder and B. Guy Peters argued that the actual process of public policy decision-making could, in an analytical sense, be divorced from the abstract concept of policy design. In much the same way, the development of an architectural plan can be distinguished from its engineering or construction manifestations at the concept stage and from the factors that led to its adoption, if not actually its implementation. Optimal policy designs in this sense can be thought of as 'ideal types,' that is, as configurations of elements that can reasonably be expected, if adopted with due attention given to specific contextual settings and needs, to have a high probability of delivering a specific outcome (Bryson et al, 2013).

As Linder and Peters (1988) argued, therefore, 'design' can be distinguished from 'non-design' by the presence of a prior intellectual scheme or set of principles that influences the creation and implementation of a policy:

> Design then, is not synonymous with instrumental reasoning but certainly relies greatly on that form of reasoning. Moreover, the invention or fashioning of policy options is not designing itself and may not even call on any design. While somewhat at odds with conventional (mis)usage, our treatment focuses attention on the conceptual underpinnings of policy rather than its content, on the antecedent intellectual scheme rather than the manifest arrangement of elements. As a result, the study of design is properly 'meta-oriented' and, therefore, one step removed from the study of (actual) policy and policy-making.
>
> *(Linder and Peters, 1988, p. 744)*

A focus on these intellectual *a prioris* and meta-conditions, they argued, helps to improve policy-making by better linking tools to contexts. But exactly how this is to be done, generally, is poorly described and analyzed in the existing design literature.

This chapter explores this meta orientation to the study of policy design. It does so by revisiting some 'first principles' for policy portfolio design found in the literature, then addresses the nature of the evaluative criteria used to assess 'good' and 'poor' design. It then moves on to consider the issue of the 'degrees of freedom' or room to maneuver that designers have in developing and implementing their designs. Finally, it turns to the notion that two distinct and very different types of design processes have been incorrectly juxtaposed in the literature: policy patching and policy packaging.

Policy Design Principles and Practices Considered

Policy designers create policy alternatives, some of which, or parts of which, may ultimately be implemented in order to attempt to achieve desired outcomes. These are alternative options for how government action can be brought to bear on some identified problem.

Design is thus both a 'verb'—in the sense of a process of creating a policy configuration sensitive to the constraints of time and place—and a 'noun'—in the sense of being an actual product or artifact that can be compared to known principles of good design (May, 2003). Policy design as a verb involves coordinating disparate actors towards agreement on designs-as-a-noun in working towards identifying policy alternatives capable of achieving policy goals in a given spatio-temporal context.

But what is it that is 'designed' in policy design? In all but the very simplest contexts, alternatives are composed of different sets of policy means—that is, policy tools and their calibrations—bundled together into packages of measures expected to attain specific kinds of outcomes (Doremus, 2003; Howlett, 2005; Howlett, 2011).[2] 'Policy design' in this sense refers to both the manner in which policy tools or instruments are combined in a principled manner to attain policy goals and the processes by which those designs are made and adopted.

Analyzing policy design in the context of designing policy mixes raises a series of questions about how the superiority of one portfolio design over another can be assessed. Not all designs are equal, nor is one design just as good as any other; a subject of much interest to students of policy designs, therefore, is the nature of the evaluative criteria that can be used to identify 'better' or 'intelligent' design and distinguish it from 'poor' design or non-design. Various 'design principles' articulated at various points in the history of studies of policy tool choice and instrument

selection have attempted to address this issue of how the superiority of a mix can be evaluated (Brandl, 1988; May, 1991).

Older Design Maxims and Their Problems

'Design' is seen as a dialectic between the (social) construction and (ecological) adaptation of policy (Lejano, 2006) or between 'principle' and 'context' (Lejano and Shankar, 2013). It is the effort to more or less systematically develop efficient and effective policies through the application of knowledge about policy means gained from experience and reason, to the development and adoption of courses of action that are likely to succeed in attaining their desired goals or aims (Bobrow and Dryzek, 1987; Bobrow, 2006).

The issue of context can be explored from both a 'spatial' and a 'temporal' vantage point and focuses attention on criteria such as 'consistency,' 'coherence' and 'congruence' as goals that complex designs should aspire towards. There are also questions about how much room to maneuver or how many 'degrees of freedom' designers have in any design circumstance: that is, how closely they must adhere to existing and pre-existing policy elements and how far they can go in proposing alternative designs to the status quo. Such considerations often have led to suggestions that designs should retain adequate 'flexibility' or adaptive elements to allow them to be adjusted once in place (Walker et al., 2010; Swanson et al., 2010) and have often promoted 'policy experiments' as a means to determine policy fit in practice (Hoffman, 2011; Vreugdenhil et al., 2012). Each of these new and old design maxims are discussed in more detail below.

Parsimonious Tool Use

The older literature on policy design suggests several maxims or heuristics that can be used to head off common errors in policymaking. The first and oldest of these is to observe parsimony in tool selection. An oft-cited rule in this area, for example, is that the optimal ratio of the number of tools to targets is 1:1 (Knudson, 2009), an axiom first put forward by Jan Tinbergen in 1952 (Tinbergen, 1952), arguing that the number of policy tools in any mix should roughly match the number of goals or objectives set for the policy.

This may appear to be a reasonable rule of thumb, for which Tinbergen provides some logical justification in his discussion of information and administrative costs associated with redundant tools in the area of economic policy. However, the reasoning behind this rule is suspect, assuming that utilizing more instruments costs less than fewer; this maxim translates easily enough into a basic efficiency calculus for the attainment of policy ends but loses its precision in so doing.

In his work, for example, Tinbergen analyzed what he termed the 'normal' case, in which it was possible to match one goal with one target so that one instrument could fully address its task and accomplish the goal set out for it. Most observers, however, including Tinbergen, were and are well aware that combinations of tools are typically used to address a policy goal, not a single instrument. As Tinbergen (1952) himself argued, "a priori there is no guarantee that the number of targets always equals the number of instruments" (p. 37), and "it goes without saying that complicated systems of economic policy (for example) will almost invariably be a mixture of instruments" (p. 71).

These admonitions, unfortunately, have generally been neglected in studies ostensibly based on Tinbergen's work, with many studies attempting to force complex situations into the more simple mold required for Tinbergen's rule to apply (Knudson, 2009). Moving beyond the Tinbergen rule is necessary if policy design principles are to inform modern design contexts and practice in a meaningful way.

Moving Up the Scale of Coercion in Sequential Instrument Choices

A second principle of policy design found in the older literature on the subject was not only to be parsimonious in the number of instruments chosen at one specific point in time to attain a goal, but also dynamically or sequentially. In the mid-1970s and early 1980s, for example, Bruce Doern, Richard Phidd, Seymour Wilson and others published a series of articles and monographs that placed policy instruments on a single continuum based on the 'degree of government coercion' each instrument choice entailed (Doern, 1981; Doern and Phidd, 1983; Doern and Wilson, 1974; Tupper and Doern, 1981) and argued that tool choices should only 'move up the spectrum' as needed from minimum towards maximum.[3]

This rationale was based on an appreciation of the ideological preferences of liberal-democratic governments for limited state activity and on the difficulties posed for the exercise of this preference by the relative political 'strength' of the societal actors in resisting government efforts to shape their behavior. Assuming that all instruments were more or less technically 'substitutable' or could perform any task—although not necessarily as easily or at the same cost—they argued that in a liberal-democratic society, governments, for ideological reasons, would prefer to use the least coercive instruments available and would only 'move up the scale' of coercion as far as was necessary in order to overcome societal resistance to attaining their goal. As Doern and Wilson put it:

> politicians have a strong tendency to respond to policy issues, (any issue) by moving successively from the least coercive governing instrument to the most coercive. Thus they tend to respond first in the least coercive fashion by creating a study, or by creating a new or re-organized unit of government, or merely by uttering a broad statement of intent. The next least coercive governing instrument would be to use a distributive spending approach in which the resources could be handed out to constituencies in such a way that the least attention is given as to which taxpayers' pockets the resources are being drawn from. At the more coercive end of the continuum of governing instruments would be a larger redistributive programme, in which resources would be more visibly extracted from the more advantaged classes and redistributed to the less advantaged classes. Also at the more coercive end of the governing continuum would be direct regulation in which the sanctions or threat of sanctions would have to be directly applied.
>
> *(Doern and Wilson, 1974, p. 339)*

This formulation has many advantages as a design principle. It is not unidimensional, although it might appear so on first reading, because it does take into account several political and contextual variables and assumes instrument choices are multi-level, with finer calibrations of instruments emerging after initial broad selections have been made.

That is, it assumes that both state and societal interests in liberal-democratic regimes prefer a minimal state and choose instruments accordingly after an initial decision to alter the status quo has been made (Howlett, 1991). Preferring 'self-regulation,' for example, governments would first attempt to influence overall target group performance through exhortation and then add instruments only as required in order to compel recalcitrant societal actors to abide by their wishes, eventually culminating, if necessary, in the public provision of goods and services.

This is not an unreasonable conclusion, based as it is on extensive observation of the actual design practices followed by many governments. However, as Woodside (1986) argued:

> Experience suggests that governments do not always seek to avoid coercive solutions, but indeed, may at times seem to revel in taking a hard line from the start. While there are

> undoubtedly many reasons for these heavy handed responses, surely some of the most important ones include the constituency or group at which the policy is aimed, the circumstances in which the problem has appeared, and the nature of the problem involved. *(p. 786)*

Hence, once again, in order for studies of policy design to move forward, simple admonitions and principles such as this should be avoided, and contextual variables related to governance structures and processes must be more carefully analyzed and integrated into design thinking.

Coherence, Consistency and Congruence as Measures of Design Integrity and Superiority

More recent work on policy design and policy mixes has focused on the need for the various parts of a mix or portfolio to be *integrated* for maximum effectiveness. Policies are composed of several elements: distinguishing between abstract or theoretical/conceptual goals, specific program content or objectives and operational settings or calibrations (Hall, 1993; Howlett and Cashore, 2007, 2008). These are set out in Figure 26.1. The design literature has recognized that some

			Policy Content	
		High-Level Abstraction	***Program-level Operationalization***	***Specific On-the-Ground Measures***
	Policy Ends or Aims	**GOALS** **What general types of ideas concern policy development?** (e.g. environmental protection, economic development)	**OBJECTIVES** **What does policy formally aim to address?** (e.g. saving wilderness or species habitat, increasing harvesting levels to create processing jobs)	**SETTINGS** **What are the specific on-the-ground requirements of policy?** (e.g. considerations about the optimal size of designated stream-bed riparian zones or sustainable levels of harvesting)
Policy Focus				
	Policy Means or Tools	**INSTRUMENT LOGIC** **What general norms guide implementation preferences?** (e.g. preferences for the use of coercive instruments, or moral suasion)	**MECHANISMS** **What specific types of instruments are utilized?** (e.g. the use of different tools such as tax incentives, or public enterprises)	**CALIBRATIONS** **What are the specific ways in which the instrument is used?** (e.g. designations of higher levels of subsidies, the use of mandatory vs voluntary regulatory guidelines or standards)

Figure 26.1 Components of a Policy Mix

Source: Modified from Cashore and Howlett (2007).

correspondence across these elements is required if policy goals are to be integrated successfully with policy means (Howlett and Cashore, 2007).

Previous work on policy design has identified evaluative criteria such as *consistency* (the ability of multiple policy tools to reinforce rather than undermine each other in the pursuit of policy goals (see Figure 26.1), *coherence* (the ability of multiple policy goals to co-exist with each other and with instrument norms in a logical fashion and *congruence* (the ability of goals and instruments to work together in a unidirectional or mutually supportive fashion as important measures of optimality in policy mixes following this integrative logic (Briassoulis, 2005; Howlett and Rayner, 2007; Kern and Howlett, 2009).

However, while clear enough in theory, empirical work on the evolution of policy mixes has highlighted how these three criteria are often weakly represented in existing mixes, especially those that have evolved over a long period of time (Howlett and Rayner, 2006; Rayner and Howlett, 2009). That is, discussions of policy designs do not take place in an historical vacuum. One issue that is especially vexing for intelligent design studies is the extent of the constraints imposed on design by the *temporal* evolution of tool portfolios.

Many existing studies assume, whether explicitly or implicitly, that *any* combination of tools is possible in any circumstance—that is, that decision-makers have unlimited degrees of freedom in their design choices. Empirical studies, however, have noted this kind of freedom in combining design elements is only to be found in very specific circumstances—what Thelen (2003) terms 'replacement' or 'exhaustion'—when older tool elements have been swept aside or abandoned and a new mix can be designed or adopted *de novo*. These circumstances are quite rare, and most existing mixes or portfolios have been found to have emerged from a gradual historical process in which a policy mix has slowly built up over time through processes of incremental change or successive reformulation—processes that historical institutionalists such as Thelen (2003), Hacker (2004) and others term 'layering,' 'drift,' or 'conversion.'

Modern Principles of Policy Design: Complementary Effects, Goodness of Fit and Degrees of Freedom

More contemporary thinking about policy design begins not with single instrument choices at specific moments in time *de novo*, but rather with considerations of designing mixes (sometimes referred to as bundles or portfolios) of tools that specifically take into account the spatio-temporal complexities missing in previous design maxims (Howlett, 2011, 2005). These studies take very seriously the need to 'match' design to both spatial and temporal contexts that were lacking in earlier studies. To this end, they have developed a new set of maxims to replace those earlier ones found faulty when applied to policymaking practice. These include 'maximizing complementary effects,' the need to match policy designs with governance contexts and better matching policy designs and policy designing or formulation activities. Each of these is addressed below.

Maximizing Complementary Effects

Recent design thinking has underlined the importance of considering the full range of policy instruments when designing a mix rather than assuming that a choice must be made between only a few alternatives such as regulation versus market tools (Gunningham, Grabosky and Sinclair, 1998).

However, a major issue for such studies is the fact that not all of the tools involved and invoked in a mix are inherently complementary (Tinbergen, 1952; Grabosky, 1995; Gunningham,

Grabosky and Sinclair, 1998; Del Río et al., 2011; Boonekamp, 2006), in the sense that they evoke contradictory responses from policy targets (Schneider and Ingram, 1990a, 1990b, 1993, 1994, 1997, 2005). Some combinations, of course, may be more virtuous in providing a reinforcing or supplementing arrangement (Hou and Brewer, 2010). Other arrangements may also be unnecessarily duplicative, while in others some redundancy may be advantageous (Braathen and Croci, 2005; Braathen, 2007).

That is, as Grabosky (1995) and others suggested, some tools counteract each other—for example, using command and control regulation while also attempting voluntary compliance—while, as Hou and Brewer (2010) argued, other tools complement or supplement each other—for example, using command and control regulation to prevent certain behavior deemed undesirable and financial incentives to promote more desired activities.

A key principle of current policy design thinking, therefore, is to try to maximize supplementary effects while minimizing counterproductive ones. 'Smart' design implies creating designs that take these precepts into account in their formulation or packaging (Gunningham, Grabosky and Sinclair, 1998; Gunningham and Sinclair, 1999; Eliadis, Hill and Howlett, 2005).

Goodness of Fit: The Need for Designs to Match Governance Mode and Policy Regime Capacities

Contemporary design theory also highlights the need for designs to respond to particular, context-dependent features of the policy sector involved. In this sense, 'goodness of fit' between tool and context is a concern in contemporary policy design considerations and can be seen to occur at several different levels.

At one level, design choices emerge from and must generally be congruent with the governance modes or styles practiced in particular jurisdictions and sectors (Howlett, 2009). That is, different orientations towards state activity require different capabilities on the part of state and societal actors. Because different governance modes or styles rely on these to greater or lesser degrees, policy designs must take into account both the desired governance context and the actual resources available to a governmental or non-governmental actor in carrying out its appointed role.

Thus, for example, planning and 'steering' involve direct co-ordination of key actors by governments, requiring a high level of government policy capacity to identify and utilize a wide range of policy tools in a successful policy 'mix' or 'arrangement' (Arts, Leroy and van Tatenhove, 2006; Arts and van Tatenhove, 2000). Work on 'policy styles' (Kagan, 2001; Richardson et al., 1982; Freeman, 1985) identified common patterns and motifs in the construction of typical policy designs in different jurisdictions reflecting such concerns (Kiss et al., 2012; Howlett, 2011, 2009).

While many permutations and combinations of possible governance arrangements exist, recent policy and administrative studies have focused on four basic or 'ideal' types found in many jurisdictions and sectors in liberal-democratic states. These are the legal, corporate, market and network governance forms. Each mode (Figure 26.2) has a different focus, form of control, aim and preferred service delivery mechanism and procedural policy orientation.

Government actions through legal and network governance can change many aspects of a socio-technical system but do so indirectly through the alteration of the relationships existing between different kinds of social actors. This is unlike corporate and market governance, which involve more overt state direction. This relationship between governance style and instruments is a significant one for studies of policy design. The exact processes by which policy decisions are taken vary greatly by jurisdiction and sector. These reflect great differences between and

Mode of Governance	*Central Focus of Governance Activity*	*Form of State Control of Governance Relationships*	*Overall Governance Aim*	*Prime Service Delivery Mechanism*	*Key Procedural Tool for Policy Implementation*
Legal Governance	Legality—promotion of law and order in social relationships	Legislation, law and rules	Legitimacy—voluntary compliance	Rights—property, civil, human	Courts and litigation
Corporate Governance	Management—of major organized social actors	Plans	Controlled and balanced rates of socio-economic development	Targets—operational objectives	Specialized and privileged advisory committees
Market Governance	Competition—promotion of small- and medium-sized enterprises	Contracts and regulations	Resource/cost Efficiency and control	Prices—controlling for externalities, supply and demand	Regulatory boards, tribunals and commissions
Network Governance	Relationships—promotion of inter-actor organizational activity	Collaboration	Co-optation of dissent and self-organization of social actors	Networks of governmental and non-governmental organizations	Subsidies and expenditures on network brokerage activities

Figure 26.2 Modes of Governance

Source: Modified from Considine (2001) and English and Skellern (2005).

within different forms of government—from military regimes to liberal democracies—as well as the particular configuration of issues, actors and problems found in particular areas or sectors of activity—such as health, education, energy and transportation, social policy and many others (Ingraham, 1987; Howlett, Ramesh and Perl, 2009). This allows some matching of design and context and is a critical insight in policy design studies.

Degrees of Freedom in Policy Designs: Matching Policy Designing and Policy Designs Over Time

As noted above, empirical studies in many policy areas have shown that many existing policy mixes were not 'designed' in the classical sense of conscious, intentional and deliberate planning according to well-established or oft-used governance principles but rather evolved through processes of layering and other change patterns (van der Heijden, 2011). As Christensen et al. (2002) have argued, the issue here is the leeway or degrees of freedom policy designers have in developing new designs given existing historical arrangements of policy elements.

That is, in addition to the requirements of 'goodness of fit' with prevailing governance modes with respect to policy design (noun), there are also constraints imposed on design (verb) activities by existing trajectories of policy development. As Christensen et al. note, "these factors place constraints on and create opportunities for purposeful choice, deliberate instrumental actions and intentional efforts taken by political and administrative leaders to launch administrative reforms through administrative design" (2002, p. 158).

The question of how much room to maneuver or degrees of freedom designers have to be creative (Considine, 2012) or, to put it another way, to what degree they are 'context bound' in time and space (Howlett, 2011) is a key one for contemporary design studies. From the historical neo-institutionalist literature, it is well understood that complex policy mixes, like institutions, can emerge through several distinct processes or historical trajectories (Beland, 2007; Thelen, 2003, 2004; Hacker, 2004; Stead and Meijers, 2004). These trajectories—'layering,' 'drift' and 'conversion'—differ from 'replacement' in terms of the challenges that they raise for each 'generation' of designers attempting to integrate policy elements in effective or 'smart' mixes with coherent goals, consistent means and congruency of goals and instruments.

- *Layering* is a process whereby new elements are simply added to an existing regime without abandoning previous ones, typically leading to both incoherence amongst the goals and inconsistency with respect to the instruments and settings used.
- *Drift* occurs when the elements of a policy mix are deliberately maintained while the policy environment changes. The impact of the policy mix is thus likely to change, and this is the result that the designer wants to achieve (Hacker, 2004).
- *Conversion* involves holding most of the elements of the policy mix constant while redeploying the mix to serve new goals (van der Heijden, 2010). While consistency may remain largely intact, conversion poses significant risks of incongruence between the old instrument elements and the new goals that have been introduced.

In other words, replacement is not the only, or even necessarily the only desirable, context for policy design; it simply imposes the smallest number of constraints on successful design. Except in the case of completely new policy areas or old ones facing the kind of total overhaul envisaged in theories of policy punctuations, policy designers are typically faced with a situation in which an already existing policy mix is in place and cannot be easily discarded (Thelen, 2003, 2004).[4]

These arrangements have commonly emerged or evolved over relatively long periods of time through rounds of previous design decisions, and even if they had a clear logic and plan at the outset, they may no longer do so (Bode, 2006). Designers' freedom is hemmed in on two sides. First, existing mixes have accumulated varying degrees of political support from those who benefit from them, ruling out replacement (Howlett and Rayner, 1995; Orren and Skowronek, 1998; Rayner et al., 2001). Layering is thus the appropriate response where key instruments in the mix are defended by powerful 'instrument constituencies' that have no objection to the addition of new instruments provided only that 'their' instrument is not touched. Conversion, on the other hand, may be indicated where these instrument constituencies can be persuaded that their favored instruments may actually be strengthened by the addition of new goals that bring in new political support for the mix. Drift is the favorite strategy of political interests who are not strong enough to destroy a policy mix whose goals they dislike but, by blocking necessary change, succeed in reducing or even transforming its impact to something more palatable (Hacker, 2004, 2005).

Designers thus can recognize and manipulate these relationships (van der Heijden, 2013). Hacker, for example, has argued that layering, in many ways the simplest way of changing a policy mix, is a process that can ultimately induce conversion. As new instruments and goals are

added into the mix without abandoning the previous ones, new possibilities for relating goals to instruments occur (Kay, 2007). Drift, on the other hand, may be deliberately used to engineer a crisis in which replacement becomes a real possibility (Hacker, et al., 2004). Layering may have a similar outcome when a new instrument, originally a minor part of the policy mix, gradually assumes prominence, perhaps as the result of setting or calibration changes, and attracts defectors from other instrument constituencies (Streeck and Thelen, 2005)

In such situations designers often attempt to *patch* or restructure existing policy elements rather than propose alternatives *de novo* in a new package of measures (Gunningham and Sinclair, 1999; Thelen, 2003, 2004; Eliadis et al., 2005). There is a strong temptation in the literature to restrict discussions of design to situations characterized by processes of replacement and exhaustion. And there is ample existing evidence showing that many existing policy regimes or mixes have developed haphazardly through processes of policy layering or repeated bouts of policy conversion or policy drift, in which new tools and objectives have been piled on top of older ones, creating a palimpsest-like mixture of inconsistent and incoherent policy elements (Carter, 2012). Sweeping it all away and starting again with custom-made policy designs capable of meeting contemporary policy challenges seems the obvious solution. Policy *packaging* of this kind seeks to exploit synergistic relationships between multiple policy instruments and is a major driver of policy integration and policy coherence across different policy domains (Meijers et al., 2004; Briassoulis, 2005a, 2005b; Meijers and Stead, 2004).

However, recognizing that layering, conversion and drift can also be 'intentional' designs—much in the same way as software designers issue 'patches' for their operating systems and programs in order to correct flaws or allow them to adapt to changing circumstances—is a critical insight of contemporary design studies.

Conclusion: Designing Policy Mixes Revisited

The purpose and expectations of policy design have always been clear (Dryzek, 1983). It is an activity conducted by a number of policy actors in the hope of *improving* policymaking and policy outcomes through the accurate anticipation of the consequences of government actions and the articulation of specific courses of action to be followed. Regardless of regime and issue type, and regardless of the specific weight given by governments to different substantive and procedural aims, all governments who wish to have their goals effectively achieved in an efficient way, through employment of knowledge and empirical data in order to assess the appropriateness of policy means, engage in 'design' (Weimer, 1993; Potoski, 2002; deLeon, 1988).

Each 'policy,' however, is a complex 'regime' or arrangement of ends and means-related goals, objectives, instruments and calibrations that exist in a governance setting and change over time. This leads to the question of how these mixes are constructed, which methods yield superior results and what is the likely result of their (re)design. Clarifying the principles enunciated and articulated by policy design proponents and distinguishing between intentional and unintentional processes of policy change for the practices of policy design are crucial where complex policy mixes are involved (Linder and Peters, 1990).

Such mixes are typically the outcome of distinctive processes of policy change, in which elements are added and subtracted from the mix over time. Understanding how these change processes create and modify mixes is critical to evaluating the chance of success for any particular policy mix. Adding the notion of policy 'patching' to considerations of intelligent design better connects this design discussion to contemporary debates about topics such as 'goodness of fit' in policy formulation, governance and steering and the 'degrees of freedom' that formulators or designers have in carrying out their work both over space and over time.

Notes

1. Within the policy sciences, 'design' has been linked both to studies of policy instruments and implementation (May, 2003) and to those of policy ideas and policy formulation (Linder and Peters, 1990a, 1990b). In this sense, policy designs can be seen to contain both a substantive component—a set of alternative arrangements thought potentially capable of resolving or addressing some aspect of a policy problem, one or more of which is ultimately put into practice—as well as a procedural component—a set of activities related to securing some level of agreement among those charged with formulating, deciding upon and administering that alternative (Howlett, 2011). It thus overlaps with and straddles both policy formulation and policy implementation and involves actors, ideas and interests present at both these stages of the policy process (Howlett, Ramesh and Perl, 2009).
2. The need to bundle or mix policy tools together in complex arrangements raises many significant questions for policy design, especially with respect to the nature of decisions about the choice of policy tools and instruments, the nature of the processes of policy formulation and the manner in which tool choices evolve over time (Yi and Feiock, 2012).
3. They first placed only self-regulation, exhortation, subsidies and regulation on this scale (Doern, 1981) but later added in categories for 'taxation' and public enterprise (Tupper and Doern, 1981) and, finally, an entire series of finer 'gradations' within each general category (Phidd and Doern, 1983).
4. Many sustainability strategies, for example, have suffered from layering. For example, efforts at the integration of various resource management regimes have failed when powerful interests are able to keep favorable goals, instruments and settings, such as unsustainable fishing or timber cutting quotas that support an industry and limit the impact of new policy initiatives (Howlett and Rayner, 1995; Rayner et al., 2001). Drift is a common situation in welfare state mixes whereby, for example, goal shifts from family to individual support (and vice versa) have occurred without necessarily altering the instruments in place to implement the earlier policy goal (Hacker, 2004c). Conversion has characterized some major health policy reform efforts (Falkenmark, 2004; Hacker, 2004a). Lack of a sustained and focused effort on the part of designers, however, can easily lead to changes in only goals or instruments and hence accomplish changes through drift or conversion, resulting in sub-optimal or disappointing results.

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27
MANAGING UNCERTAINTY
Controlling for Conflicts in Policy Mixes

Pablo del Río

Introduction

Policy mixes are a fact in many policy areas. Multifaceted problems such as climate mitigation and the transition to a sustainable energy system typically involve complex arrangements of institutions and instruments, and the subject of how best to design and operate such mixes of policy tools is an ongoing issue in policy analysis (Howlett et al., 2017).

More specifically, conflicts may arise as a result of the coexistence of different targets or instruments. The instruments are not isolated from each other; they interact, leading to the potential for negative conflicts (one plus one is less than two) (Howlett and Del Río, 2015). In particular, there might be inconsistencies and incongruencies in instruments embedded in policy mixes (Howlett and Mukherjee, 2014). When multiple instruments are involved in a mix, they may be inherently contradictory in the sense that they evoke contradictory responses from policy targets, canceling out or confusing their effects (del Río and Howlett, 2013). Indeed, existing evidence shows that suboptimal situations—in which duplication and unnecessary redundancies and gaps remain in existing policy mixes—are very common. The reason is that many existing mixes have developed haphazardly through processes of policy layering, in which new tools and objectives have been piled on top of older ones, creating a mixture of inconsistent and incoherent policy elements (Howlett et al., 2017).

Mixes can be assessed at a general level by identifying spaces of conflicts, complementarities and synergies between policy fields; in line with Howlett and del Río (2015), however, it is assumed in this chapter that those interactions also depend on the type of instruments being adopted and the specific design elements of the instruments adopted within each policy field. The choice of specific instruments and design elements within interacting policy fields may contribute to mitigating conflicts and promoting complementarities and synergies—or it may not. Furthermore, coordination is easier under certain instruments and design elements than under others (Howlett and del Río, 2015).

The aim of this chapter is to propose an analytical framework that allows the identification of conflicts in policy mixes and to discuss how those conflicts can be mitigated.[1] Conflicts in the context of this chapter refer to detrimental impacts of one target, instrument or design element on another target, instrument or design element according to one or more assessment criteria. These conflicts and the alternatives that can mitigate them are illustrated with reference to the

literature in one policy area, climate and energy policy, with a focus on the EU. Indeed, work on mixes in the area of climate change mitigation and renewable energy support has led the way in the analysis of auctions (Howlett and del Río, 2015). In particular, we draw on some themes from this literature: The coexistence between CO_2 mitigation instruments and support for electricity from renewable energy sources (RES-E), and the interaction between emissions trading schemes (ETS) and RES-E support instruments and design elements in auctions for RES-E.

Accordingly, the chapter is structured as follows. The next section provides the analytical framework, where the different components in policy mixes are related to each other and relevant concepts from the climate and energy policy literature are discussed. This allows us to illustrate how conflicts can be identified ("Identifying Conflicts") and mitigated ("Mitigating Conflicts"). The chapter closes with some conclusions.

Analytical Framework

Mitigating the conflicts within mixes through effective policy design first requires recognizing different design spaces and their implications for what is being designed, and by whom (Howlett and del Río, 2015). After such a diagnosis, measures can be identified to mitigate those conflicts. Thus, a main initial task in identifying potential conflicts is to identify the components of policy mixes as well as their relationships.

Several contributions in the past have explicitly tried to identify critical components in policy mixes as well as their relationships. Two are worth mentioning in this context (del Río, 2014; Rogge and Reichardt, 2016). Building on these contributions, and complementing them with further insights, this section aims to provide an integrated analytical framework that can be useful to identify and mitigate conflicts in policy mixes. The discussion is illustrated with reference to one particular policy realm: climate and energy policies.

The first step is diagnosing the level of complexity in the policy mix. As Figure 27.1 shows, several distinct mix types exist based on the number of goals, the number of policies and the number of levels of government involved in the construction and maintenance of a policy 'portfolio' or 'bundle' (Howlett and del Río, 2015). The first situation can be thought of as 'horizontal' ones, which occur within the same level of government—for example, at the level of a single national, international, state or local government. The third situation, however, adds an additional 'vertical' complication, highlighting the manner in which the components of a mix also have to be coordinated across levels of government. The degree of complexity and the difficulty in achieving integration grows as the number of goals, policies and levels of government involved increase (Howlett et al., 2017, p. 71). The focus in this chapter is on the second and third situations.

In general, policymakers, at least in democratic societies, have a main meta-goal, e.g., to improve the social welfare of the population in their jurisdictions. In order to achieve this meta-goal, governments usually have a set of goals, which can be related to the three dimensions of sustainability: economic (reduction in unemployment, higher standards of living), environmental (lower levels of all types of pollution) and social (a more even distribution of wealth). The pursuit

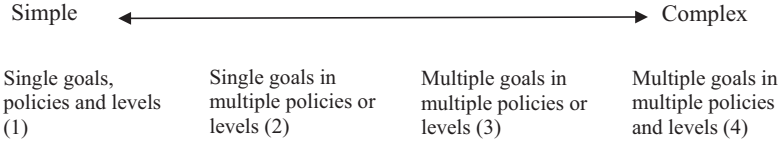

Figure 27.1 Spectrum of Policy Mix Complexity

of those goals materializes into public policy interventions in specific policy areas, i.e., specific targets and instruments.[2] For example, in the EU context, the European Commission and the Member States widely acknowledge that there are three main goals in the climate and energy policy realm: environmental sustainability (mitigation of CO_2 and other pollutants), security of energy supply (diversification of energy sources) and economic sustainability (a competitive energy system, i.e., affordable energy).[3] Other common government goals are employment and industry creation, regional and rural development and support for innovation. Renewable energy technologies in general contribute to those goals. It is well known that the environmental impacts of RES-E are much lower than those of the conventional fossil-fuel fired alternatives. The benefits of RES-E deployment in terms of greenhouse gas (GHG) reductions are undisputed in the literature, and RES-E deployment would also bring tangible benefits for countries in terms of availability, accessibility and affordability of energy sources other than fossil fuels. Finally, RES-E deployment has the potential to contribute to other social goals, in particular to employment (Mir-Artigues and del Río, 2016).

There are different, but interrelated, policy subareas in the climate and energy policy area. In particular, we may distinguish between the subareas of climate mitigation and support for renewable electricity (see below). Within a given policy subarea, public policies translate into the setting of targets and instruments and design elements to reach those targets.

'Instrument' is a more specific term than 'policies.' It refers to the tools, techniques or means used by governments in order to address policy problems and achieve policy goals (Linder and Peters, 1990; Howlett, 2005; Rogge and Reichardt, 2016). These instruments have a special place in the consideration and study of policy design (and thus, any analysis of policy mixes) because, taken together, they comprise the contents of the toolbox from which governments must choose in building or creating public policies (Policy Design Lab, 2017). A key distinction is between procedurally oriented implementation tools and substantive implementation instruments. While the former affect production, consumption and distribution processes only indirectly, substantive implementation instruments are those policy techniques or mechanisms used to directly affect the production, distribution and consumption of goods and services in society (Policy Design Lab, 2017).[4] The emphasis in this chapter is on substantive instruments.

Much of the literature has focused on the choice of instruments, while design elements have not received as much attention. Yet design elements within specific instruments are a main policy component. Indeed, it has been shown in several policy realms that the success of policies depend as much on the design elements of instruments as it does on the choice of instruments—for example in the areas of sustainability transitions (Rogge and Reichardt, 2016), environmental economics (Kemp and Pontoglio, 2011) and renewable energy support (del Río et al., 2012).[5] Thus, identifying those design elements is both an academically and policy relevant endeavor.

Therefore, the discussion on the choice of policies and instruments should be broadened and include both specific (substantive) instruments as well as the design elements in particular instruments. Rogge and Reichardt (2016, p. 1624) argue that design elements can be differentiated by abstract and descriptive features.[6] In this chapter, we focus on descriptive features, such as an instrument's legal form, its target actors and its duration (del Río, 2012). Such descriptive features can serve as a first step in identifying how a policy instrument performs regarding abstract design features.[7] Policy mixes also refer to the coexistence of different design elements. Indeed, it will be shown how conflicts between instruments are mediated by the design elements of those instruments.

It is often assumed, at least in the environmental economics literature, that there is a direct, mechanistic connection between instruments/design elements and goals/targets (see, e.g., del Río et al. 2012 for a review and critique of this literature along those lines). However, this link in fact is mediated by the impact of the instruments and design elements on some intermediate

variables that, in turn, affect outcome variables that directly contribute to the fulfillment of targets. Most often, the impacts on the intermediate variables are not analyzed, and they are only implicit at best. Intermediate variables—internal mechanisms activated by the design elements—refer to the dimensions, factors and drivers that influence a given criterion. They are context-specific, i.e., they need to be defined specifically for each policy area at a given time and at a specific location and institutional setting. Outcome variables may refer, for example, to changes in technologies, behavior or infrastructure. The success in achieving goals is mediated by the success of policies in triggering changes in those outcome variables through their influence on intermediate variables. For example, whether policies achieve a sustainable energy system depends on their success in triggering changes in technologies, behaviors or infrastructures.

How instruments and design elements contribute to targets through their effects on intermediate and outcome variables can be judged with assessment criteria. The relevant assessment criteria are those of each policy area as well as those of the overall policy mix. There might be conflicts between criteria, e.g., instruments that contribute to a target may do so by improving one criterion (e.g., effectiveness in compliance with the target) at the expense of worsening another (efficiency in compliance). These conflicts are common in some policy areas, for example in the realm of climate and energy policies. The best way to address trade-offs and conflicts between criteria is to adopt a multi-criteria framework that makes those conflicts explicit (Howlett and del Río, 2015).

While the analysis may focus on one policy area, two or more policy areas might indeed be related through the impact of instruments and design elements on each other's intermediate and outcome variables (Figure 27.2). This is more the case when overlaps between policy areas exist. These links certainly complicate the analysis of interactions.

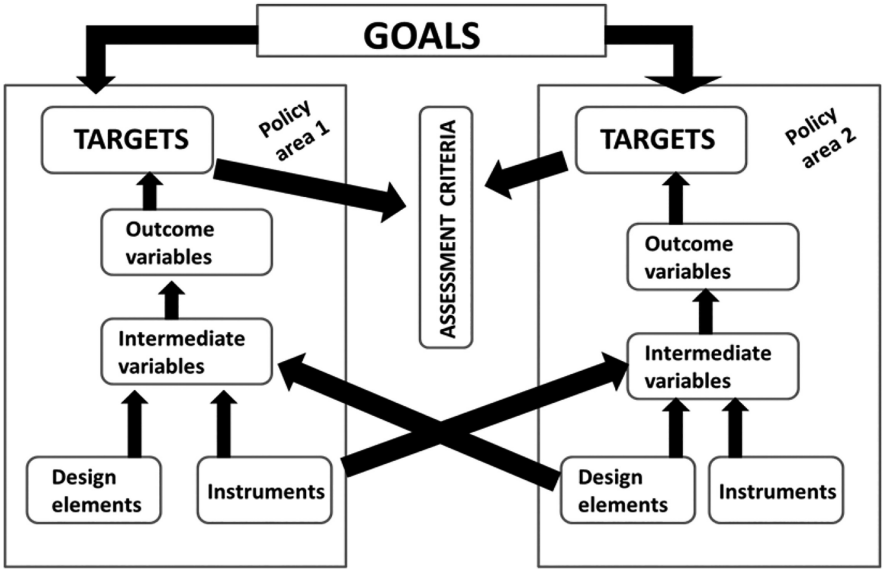

Figure 27.2 Components in Policy Mixes and Their Interrelationships

Source: Own elaboration.

Another complication occurs when there are several levels of government involved in policy formulation. Conflicts can be defined as horizontal (between different types of instruments, policies or governments) and vertical (between different levels of goals, policies and levels of government) (Howlett and Del Río, 2015). This second, 'vertical' dimension is often ignored in studies of policy mixes. In such multi-level government contexts, governments at different levels are likely to have some common goals and instrument preferences, but also some opposing ones (del Río and Howlett, 2013).

This chapter draws on the literature on climate and renewable energy policy in order to illustrate the possible conflicts in policy mixes and to discuss options to mitigate those conflicts. In particular, we consider two policy realms, i.e., CO_2 mitigation and RES-E support and, within the latter, auctions for RES-E deployment.

A combination of targets and policies in the climate and energy policy realm has been adopted in the EU for both 2020 and 2030. The 2020 package sets three key targets: a 20% cut in greenhouse gas emissions (GHG) (from 1990 levels), 20% of EU energy from renewable energy sources (RES) and a 20% improvement in energy efficiency. For 2030, the targets include a 40% cut in greenhouse gas emissions (from 1990 levels), a 27% share of RES and 27% energy savings compared with the business-as-usual scenario. The targets and policies interact with each other in complex ways. One of the interactions occurs between the deployment of electricity from RES (RES-E), which is triggered by the RES targets and national support schemes, and the European Union Emissions Trading Scheme (EU ETS), which is the flagship of the EU's climate policy. Such mixes and their interactions have raised the concern of policymakers about the redundancy of policies and instruments and the low efficiency of the overall policy mix (see "Identifying Conflicts"). Inconsistencies between different energy and climate targets and instruments have been criticized by different types of stakeholders (see, e.g., EC, 2013).

Because targets and instruments for CO_2 mitigation and RES-E support coexist in the EU, relevant insights for the literature on policy mixes can be inferred. Those instruments are described below.

- *CO_2 mitigation.* CO_2 mitigation involves the adoption or implementation of technologies and infrastructures and changes in behavior that reduce CO_2 emissions. Our focus here is on CO_2 mitigation in the electricity sector. Alternatives to mitigate CO_2 emissions include the adoption of energy efficient technologies and practices and low-carbon technologies. The latter encompass renewable energy technologies, but also nuclear energy (which is GHG emissions-free, at least in the production of electricity) and even coal with carbon capture and storage (CCS). Targets for CO_2 emissions per country were initially set in the Kyoto Protocol. In the EU, targets were set for the region as a whole and on a per country basis. Several instruments exist to mitigate CO_2 emissions under the traditional dichotomy of market-based vs. command and control. Focusing on market-based CO_2 mitigation instruments for the purposes of this chapter, these include an emissions trading scheme (ETS) and a CO_2 tax. Under an ETS, a cap is set on the total emissions allowed from a group of sources and the number of allowances corresponding to the cap is distributed. Sources have to surrender an allowance when they emit a ton of CO_2 or must pay a penalty. An ETS was implemented in the EU in 2005 (the EU ETS). Under a CO_2 tax, a tax is levied on the carbon content of fuels (€/t CO_2). A carbon tax for the electricity generation sector would mean that electricity-generating units would have to pay for the fuel they burn to produce electricity. The tax rate would be highest for the most polluting sources (coal) and zero for carbon-free sources (renewables).

- *RES-E support*. RES-E provides several social benefits (see above), including reductions of CO_2 emissions, but the cost has been higher in the past than the alternatives with which it competes. Therefore, public promotion has been justified (see del Río and Gual, 2004 for a discussion).[8] As of 2016, 176 countries around the world have adopted at least one type of renewable energy target, up from 43 countries in 2005 (IRENA, 2015; REN21, 2017). RES-E promotion has traditionally been achieved with one of four instruments, whose costs are usually borne by consumers: feed-in tariffs (FITs), feed-in premiums (FIPs), quotas with tradable green certificates (TGCs) and auctions (see Table 27.1 for a description). Most RES-E investments in EU countries have been triggered by FITs or FIPs.

Given the alleged efficiency benefits of RES-E auctions (see del Río, 2017b), many countries around the globe have recently implemented such auctions. According to IRENA (2017), 67 countries had held RES-E auctions as of 2016, up from six countries in 2005. In the EU, competitive auctions are required to be implemented in order to provide support to all new installations from 2017 onwards (EC, 2014). As with other support schemes, the devil lies in the details: whether auctions will fulfill expectations and result in a successful promotion of RES-E depends on the choice of design elements. Key design choices in RES-E auctions are shown in Table 27.2.

Two obvious criteria to assess policies in the areas of climate mitigation and RES-E support are effectiveness and efficiency. The former refers to the contribution of instruments to compliance with CO_2 or RES-E targets, respectively. The second relates to the cost-effective achievement of those two targets, i.e., at the lowest possible costs. Dynamic efficiency represents an additional relevant criterion in both realms. This refers to the extent to which instruments are able to induce innovation in technologies leading to lower CO_2 mitigation costs or RES-E deployment costs in

Table 27.1 A Description of RES-E Support Instruments

Instruments	*Description*
FIT	Provide total preferential and guaranteed payments per kWh of electricity of renewable origin, combined with a purchase obligation by the utilities.
FIP	A guaranteed payment per kWh on top of the electricity wholesale-market price is granted, combined with a purchase obligation by the utilities.
Quotas with TGCs	TGCs are certificates that can be sold in the market, allowing RES-E generators to obtain revenue. This is additional to the revenue from their sales of electricity fed into the grid. The issuing (supply) of TGCs takes place for every MWh of RES-E, while demand generally originates from an obligation (quota) on electricity distributors. The TGC price covers the gap between the marginal cost of renewable electricity generation at the quota level and the price of electricity.
Auctions	The government invites RES-E generators to compete for either a certain financial budget or a certain RES-E generation capacity. The cheapest bids per kWh are awarded contracts and receive the subsidy. The operator pays the bid price per kWh.

Source: Own elaboration.

Table 27.2 Selected Design Auctions in RES-E Auctions

Design Element	*Description*
Volume	There are three main ways to set the volume auctioned: capacity (MW), generation (MWh) or budget (million €).
Diversity	Diversity with respect to technologies, locations, actors and sizes of the installations could be promoted in an auction by organizing different auctions per alternative (e.g., technology-neutral vs. technology-specific), by including a minimum quota per alternative, by providing different remuneration levels for different alternatives or by lowering prequalification requirements or penalties for specific categories (i.e., small actors).
Types and Forms of Remuneration	Remuneration in an auction can be provided for generation (MWh) or capacity (MW). Generation-based remuneration can be provided as full payment (FIT) or through a premium top-up on the market price (FIP).
Selection Criteria	Price-only auctions are organized using only one criterion (the bid price). In multi-criteria auctions, the price is the main criterion among other criteria (e.g., local content rules, deliverability, impact on local R&D, industry and jobs and environmental impacts).
Auction Format	In a single-item auction, there is a single product that is allocated to a single owner and the product cannot be split. In a multi-item auction, the auctioned product is split among different owners and bids are submitted for only part or the total auctioned amount.
Auction Type	There are two alternatives to set the level of support. Under *sealed-bid auctions*, project developers simultaneously submit their bids with an undisclosed offer of the price at which the electricity would be sold. An auctioneer ranks and awards projects until the sum of the quantities offered covers the volume of energy being auctioned. Under the *multi-round descending clock auction*, the auctioneer offers a price in an initial round, and developers bid with offers of the quantity they would be willing to provide at that price. The auctioneer then progressively lowers the offered price in successive rounds until the quantity in a bid matches the quantity to be procured. Hybrid models may use the descending clock auction in a first phase and the sealed-bid auction in a second phase.
Pricing Rules	Under uniform pricing, all winners receive the strike price set by the last bid needed to meet the quota (highest accepted bid) or the first bid that does not meet the quota (lowest rejected bid). Under the pay-as-bid (PAB) alternative, the strike price sets the amount of generation eligible for support and each winner receives his/her bid.
Penalties	Penalties can take different forms: they can forbid participation in successive auctions, reduce the level of support, reduce the length of the support period by the time of the delay, lead to the confiscation of bid bonds or result in penalty payments.

Source: Own elaboration based on del Río et al. (2015).

the future. Other relevant criteria include minimization of support costs, equity, local (environmental and economic) effects and socio-political acceptability (see Table 27.3).[9]

As mentioned above, the influence of the instruments/specific design elements on the fulfillment of targets (as evaluated with assessment criteria) are mediated by their impact on intermediate and outcome variables. For example, in the case of auctions, design elements affect the participation of bidders in the auction by influencing the costs, risks and expected benefits of participation (bid levels with respect to generation costs). In general, the higher the costs, the

Table 27.3 Relevant Assessment Criteria in the Climate and Energy Policy Realm

Criteria	*Brief Characterization*
Effectiveness	The ability of an instrument to achieve CO_2 and/or RES-E targets.
Static Efficiency	The ability of an instrument to reach either RES-E or CO_2 targets at the lowest societal cost. This involves compliance with the equimarginality principle. According to economic theory, a given CO_2 or RES-E target is achieved with the lowest CO_2 abatement or electricity generation costs, respectively, when marginal costs between different polluters or power plants are equalized. This means that proportionally greater RES-E deployment or CO_2 abatement is undertaken by those firms and installations with lower RES-E deployment or CO_2 abatement costs, and lower RES-E deployment and abatement by plants or emission sources with higher costs. The system costs of RES-E generation can be disaggregated into direct and indirect costs. The former includes installation, operation and maintenance of renewable energy technologies. Direct generation costs refer in this chapter to allocative efficiency, to which the equimarginality principle applies. Indirect costs refer to balancing, profile, grid and transaction costs.[10]
Minimization of Support Costs	Minimization of policy support costs is a concern of governments everywhere. Support costs may be paid either by electricity consumers or taxpayers.
Dynamic Efficiency	The impact of deployment instruments on innovation in renewable energy technologies.
Equity	Instruments have distributive impacts. They may have more or less beneficial effects on different countries and actors within those countries.
Environmental and Economic Effects	CO_2 abatement and RES-E deployment have unavoidable local impacts (positive or negative) that might be socio-economic (diversification of energy sources, job creation and regional development opportunities) or environmental (reductions of local pollutants).
Socio-political Acceptability	Policies may not be socially acceptable and may be rejected by the population. Social acceptability and political feasibility go hand in hand.

Source: del Río (2017a)

higher the risks or the lower the expected benefits, the lower the number of participants. A lower level of participation negatively affects the level of competition, leads to higher bid prices and reduces the efficiency of the auction. Effectiveness is affected by those design options with an impact on investors risks' (negative influence), competition (negative influence, a higher level of competition induces more aggressive bidding and, eventually, underbidding and underbuilding) and bid levels (the higher these levels, the higher the realization rate). The impact at bidders' level translates into market effects, which include the number of bidders in the auction, the diversity of those bidders and their market concentration. In turn, these aspects have consequences on the functioning of the auction (assessed with the aforementioned criteria; see del Río, 2015 for further details).

Identifying Conflicts

Conflicts are one type of interaction between policies, together with complementarities and synergies. At the level of instruments, and for a given criterion, complementarity occurs when an instrument (X) adds fully to the effect of another instrument (Y): (X + Y = 2). Synergy occurs when adding X to Y magnifies the impact of the combination: (X + Y > 2). When there is a conflict, the addition of an instrument (X) to another instrument (Y) leads to a positive effect on the combination, but the impact of the combination is lower than it would be if both instruments were used separately (X + Y < 2) (del Río, 2014).

Conflicts between policy components can occur at different levels—for example, between different targets or between different instruments to attain different targets (Type II policy mix in del Río 2014) or between different instruments to attain one target (Type I policy mix). Lastly, there can be conflicts regarding different design elements within a given instrument (Type III conflicts).[11]

Type I: Conflicts Between Targets

Type I conflicts occur when a target in one policy area has negative effects in the target for another policy area. Negative impacts refer to specific assessment criteria. For example, one target may reduce the efficiency of reaching the other target. This is more likely when there are overlaps between the respective policy areas. One example of this negative interaction or conflict is between CO_2 targets and RES-E targets. A limitation on CO_2 emissions has been a policy goal in many countries around the world (including EU Member States) for two decades. At the same time, EU countries have actively encouraged RES-E deployment. RES-E is a mitigation option, although it brings other social benefits that are not covered by the CO_2 target (see "Analytical Framework"). Therefore, the CO_2 and RES-E areas partially overlap. A particularly problematic conflict arises because of this overlap: Because some renewable energy technologies are costly, an RES-E target could result in more expensive CO_2 emissions reductions (Stavins, 2014; Abrell and Weigt, 2008, among others). In other words, the CO_2 emissions reduction target would not be achieved in the most cost-effective manner.

Type II: Conflicts Between Instruments (for a Given Target or for Two Targets)

Sometimes it may make sense to implement two instruments for a given target—for example, if there are different types of market failures that one instrument is not capable of removing, and the addition of another instrument is required. Because both instruments do not work in isolation, however, they may interact in a negative manner, at least with respect to some aspects (criteria) and, thus, lead to conflicts.

Another case is when we have two targets and two instruments, with each instrument aiming to contribute to each target. There might be a conflict between an instrument in one area and the target in another area and/or between instruments in both areas. This has been observed in the climate and energy policy area. It has also been claimed that support for RES-E deployment negatively interacts with a specific CO_2 mitigation instrument (an ETS), reducing CO_2 prices, favoring the dirtiest technologies over the greener ones. The reason is that, in an ETS, there is a cap on CO_2 emissions. The cap implies a supply of allowances (equal to the cap). Because RES-E is CO_2-free, it reduces the demand for allowances and, thus, lowers the CO_2 price (see del Río, 2014; del Río, 2017a). Böhringer and Rosendahl (2010) argue that this lower CO_2 price benefits conventional fossil-fuel generation, leading to increased production from the most CO_2-intensive power generation technologies (e.g., coal vs. gas) compared to an ETS alone. In addition, this lower price decreases investment and/or innovation efforts aimed at low emission technologies (del Río, 2014; del Río, 2017a). There is, thus, a conflict between a target (RES-E) and a CO_2 instrument (an ETS).

The conflict can be worse depending on the type of RES-E support instrument used. Although there are two targets (a CO_2 mitigation and an RES-E target), and even if the second target is considered when the first target is set (coordination at the level of targets), price-based instruments in the RES-E policy area (such as FITs) may lead to excessive RES-E deployment (i.e., above the RES-E target). As mentioned earlier, this causes conflicts in the other policy realm. An excessive RES-E generation with one instrument (FITs) would lead to even greater reductions in the CO_2 price under an ETS. This conflict between instruments can be mitigated if other types of instruments are implemented (see "Mitigating Conflicts").

Type III: Conflicts Between Design Elements Within Instruments

Instruments are made up of different design elements, and the choice of one design element may improve one of the criteria in Table 27.3 at the expense of worsening another criterion (see, for example, the analysis of design elements in RES-E auctions carried out in del Río, 2017b). A few design elements score better than the alternatives in some criteria without scoring worse in others, i.e., they do not lead to conflicts between criteria. However, many design elements involve trade-offs between criteria. Box 27.1 provides examples of some design elements that lead to conflicts between criteria.

Box 27.1 Examples of Design Elements Leading to Conflicts Between Criteria

Diversity

Diversity of technologies, actors, sizes or locations may lead to different benefits. For example, technology-differentiated support aims at support for the local industrial value chain (an argument in China, Brazil, France, Portugal and South Africa), system integration (California, France) and participation of small actors/social acceptance (Denmark, France). A diversity of technologies is needed for system stability and security of supply.

However, diversity leads to higher *support costs* and lower *efficiency* due to market segmentation, with fewer bidders and lower participation and competition in a given contingent and, thus, higher bids (higher support costs), although the risks of excessive remuneration for the cheapest locations/technologies would be mitigated. In contrast, technological neutrality (see Table 27.2)

would lead to projects with lowest costs being awarded contracts (higher static efficiency). Geographical diversity could also involve additional government resources (identifying appropriate sites). Inducing size diversity reduces economies of scale, increasing generation costs and bids (lower static efficiency and higher support costs).

However, the reduction of the risks of administrative permits under geographical diversity would reduce the risk of non-compliance by freeing the investors from the liability of securing land, obtaining environmental permits, carrying out resource assessments and securing access to the grid. The lower participation costs and risks increase participation and competition (lower bids and support costs), (partially) offsetting the higher bid prices from market segmentation and the non-minimization of generation costs. Likewise, supporting actor diversity would alter the market structure to which the bidding procedure applies, increasing competition, reducing the likelihood of market power and collusive and strategic behavior (lower bid prices). For example, the grid accessibility of the scheme for smaller companies has led to high competition in the Netherlands.

Therefore, if low support costs and allocative efficiency are the goals, then neutrality should be promoted. If dynamic efficiency, local impacts, indirect costs and actor diversity are the goals, then diversity should be promoted.

Selection Criteria: Multicriteria vs. Price-Only

Price-only auctions would result in contracts being awarded to the lowest bidders, whereas multicriteria auctions allow for the achievement of multiple policy objectives (e.g., local employment, local environmental impacts, industrial development, social acceptance etc.). Because the least cost bidders might not be selected in multicriteria auctions, these auctions have a *lower allocative efficiency* and *higher support costs* than price-only auctions. The extra cost has to be weighted with the benefits of the other policy objectives (*local impacts* and *dynamic efficiency*) that nevertheless could be more effectively tackled with measures outside the auction scheme. In Portugal, the multicriteria auction did not guarantee that the sites selected by the wind developers were optimal (del Río, 2016).

Source: Own elaboration based on del Río (2017b, p.7).

It is important to note that there might be inherent conflicts between criteria in a particular policy area and, thus, in a policy mix, and that these conflicts will remain regardless of which instrument or design element is chosen. Indeed, in the literature on RES-E support schemes, criteria have traditionally been proposed as a checklist, independent from each other. In reality, however, criteria are interrelated. An integrated analysis of how different criteria interact and relate to each other, either directly or indirectly, is provided by del Río et al. (2012) for the case of RES-E support. The authors find that a greater level of local benefits at the country or regional level may come at the expense of cost-effectiveness in meeting EU targets. Another example of a conflict is between consumer costs and dynamic efficiency.

The degree of complexity grows with the increase in the number of goals, policies and levels of government involved. Conflicts with respect to goals and instruments are likely to be more common and prominent when multiple jurisdictions are involved (i.e., vertical conflicts), because different levels of government are likely to have common but also different goals and instrument preferences (Howlett et al., 2017, p. 71).

Mitigating Conflicts

A number of measures may mitigate conflicts in policy mixes, including coordination of targets, the choice of instruments and the choice of design elements.

Mitigating Type I Conflicts: Coordination of Targets

Coordination refers to the capacity to ex-ante coordinate instruments and targets. In the climate and energy policy area, coordination occurs if the CO_2 emissions that are expected to be reduced as a result of the dedicated support provided to RES-E can be predicted with a reasonable level of accuracy, and the CO_2 target is adjusted accordingly. In other words, the target can be made more stringent when the expected RES-E deployment is greater. Then, the alleged problem of a lower carbon price would not exist. Such coordination between the targets has improved in the EU ETS over the years (see del Río, 2017a for a detailed analysis).

There is certainly a role for coordination between targets and instruments to mitigate conflicts and to promote complementarities and synergies in policy mixes, but, as noted by del Río (2014), the role of coordination is necessarily limited even at the same administrative level, given the aforementioned trade-offs between assessment criteria. It cannot achieve the highest score in conflicting criteria.

Furthermore, the existence of different (and sometimes opposing) goals at different administrative levels complicates the role that coordination can play in successful policy mixes. Different goals may create winners and losers at different government levels, leading to unacceptable distributional effects. Thus, vertical conflicts are more difficult to tackle through coordination (del Río and Howlett, 2013; Howlett et al., 2017).

Mitigating Type II Conflicts: Choosing Instruments That Minimize the Conflict

Conflicts between instruments can be mitigated through appropriate instrument choice. For example, as discussed in "Identifying Conflicts," all instruments supporting RES-E deployment can potentially affect CO_2 prices. An additional kWh of RES-E would reduce the demand for allowances and, thus, drive down those prices, whatever the promotion instrument used to support it. Basically, the impact of RES-E instruments on CO_2 prices will depend on the extent to which those instruments are (too) effective in triggering RES-E deployment (i.e., above or below targets) and the ability to coordinate both RES-E and CO_2 targets under different instruments (see del Río, 2017c for a detailed discussion).

We can expect that price-based RES-E support instruments (i.e., FITs and FIPs) would be more likely to have negative effects on CO_2 prices than quantity-based ones (quotas with TGCs and auctions). The reason is that price-based RES-E support instruments are likely to be both more effective and less amenable to coordination than quantity-based ones. There is a substantial amount of evidence showing that price-based RES-E support instruments have generally been more effective than quantity-based instruments in driving RES-E investments in the past (Ragwitz et al., 2007; IEA, 2011). In fact, for a dynamic technology such as solar PV, support levels under FITs seem not to have been properly adjusted to the cost of the technologies. The latter were lower than expected, which created widespread solar PV booms all around Europe. This is unlikely to happen under quantity-based instruments, with quantity limits given by the quota (under TGCs) or the amount of capacity or budget to be contracted (under auctions). The empirical evidence also shows that auctions have led to underbuilding or delays in building RES-E projects (del Río and Linares, 2014; Wigan et al., 2016).

On the other hand, given that quantity-based instruments have an in-built target, coordination between the RES-E and CO_2 targets would be easier, although some design elements under price-based RES-E instruments can also facilitate such coordination (e.g., binding caps; see next subsection).

In contrast, conflicts are less likely with a price-based CO_2 mitigation instrument (a carbon tax) than with a quantity-based instrument (an ETS). This is because the aforementioned negative interactions between RES-E support and an ETS, leading to a reduction of carbon prices in the absence of coordination, would not occur under a carbon tax, because, in this case, RES-E deployment does not affect the carbon price (i.e., the level of the carbon tax; see del Río, 2017c for a detailed discussion). To sum up, quantity-based RES-E support instruments and price-based CO_2 mitigation instruments are less likely to lead to negative interactions.

Mitigating Type III Conflicts: Choosing Design Elements That Reduce Conflicts

Some choices of design elements may mitigate the conflicts between instruments and/or between instruments and targets. The impact of design element choices on the interactions between instruments and targets is related to the comparative impact of the design features on RES-E deployment (i.e., effectiveness) and their contribution to the ease of coordination of targets. Because the interactions between RES-E support and a carbon tax would be modest (see above), the discussion focuses on the interactions with an ETS. Only a few design elements will be considered, however, with the aim to illustrate how they can mitigate conflicts (see del Río, 2017c for a full discussion).

Some choices of design elements are not instrument-specific, but common to all instruments. Regarding common design elements, *target setting* (i.e., the alternatives to set RES-E targets) can certainly have an influence on the interactions. The level of RES-E deployment under absolute caps (either generation or capacity caps) is more certain than under relative targets (RES-E set as a percentage of electricity consumption). This makes it easier to coordinate RES-E and CO_2 targets under absolute caps, while a more negative impact on the interactions can be expected under relative targets.

Absolute caps can be set through either *budget*, *capacity* or *generation caps*. Generation caps are more easily coordinated with CO_2 targets than capacity targets, with capacity caps being easier to coordinate than budget caps. The reason is simple: future RES-E generation (and, thus, the extent of substitution for conventional electricity) is obviously more easy to predict under generation caps.

Regarding *instrument-specific design elements*, because price-based RES-E support instruments would be more likely to have negative effects on CO_2 prices than quantity-based instruments, it is worth identifying which design features under price-based support instruments (FITs) could mitigate such negative impacts. The implementation of *caps* in FITs could have a considerable influence on the interactions. Caps put a limit on the amount of RES-E that is eligible for support. They are not an inherent in-built feature of FITs. Without caps, explosive growth in RES-E deployment is more likely, especially for very dynamic technologies such as solar PV (as experienced in the past), driving down the carbon price and triggering the negative effects associated with this reduction. Caps would also make coordination between RES-E deployment and CO_2 targets easier.

However, there might be inherent conflicts between criteria that can hardly be mitigated with design elements. Thus, the choice of a specific design element is often not a win-win solution and is contingent upon the priorities of the respective government, because such a choice may

have a positive impact on one criterion/goal and a negative impact on another. This has clearly been shown in del Río (2017b) for the case of RES-E auctions. While several contributions have analyzed the pros and cons of different design elements in auctions, it has often been assumed that there is a set of idealized best practices (i.e., design elements) that can be applied irrespective of the specific policy goals of governments. However, policymakers usually have different criteria to assess the success of policy design, reflecting their own policy goals. This means that, when choosing different design elements, one has to deal with trade-offs between criteria. Depending on the weight attached to different criteria/goals, different design elements will be chosen.

Conclusions

Policy mixes exist in many policy areas. As a result, conflicts between different components in policy mixes arise, in particular between targets, instruments and design elements. This chapter has provided an analytical framework to identify those conflicts and propose options to mitigate them. The coexistence between renewable energy support and CO_2 mitigation policies has been used to illustrate the negative interactions.

This chapter suggests that, while conflicts are usually regarded as a negative feature of policy mixes, they are an inherent feature of those mixes that policymakers have to live with, given the existence of different goals (usually specified in the setting of targets) and assessment criteria. Identifying those conflicts in a policy mix becomes a critical task in order to mitigate them. Conflicts exist at different levels—between targets, between individual instruments, between design elements within those policy areas and even between assessment criteria. Those conflicts can be mitigated through coordination and the choice of instruments and design elements, but there are limits to the role that coordination can play, given the inherent trade-offs between goals and between criteria. Coordination can be particularly challenging when there are different government levels.

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Notes

1. Note that while interactions refer to conflicts, complementarities and synergies, this chapter focuses on conflicts.
2. Obviously, in real policy practice, policymakers are not only influenced by this idealistic pursuit of the welfare of the population but also affected by particular interest groups that lobby for the implementation of specific targets and instruments.
3. See, for example, EC (2012).
4. See Policy Design Lab (2017) for further details.
5. Empirical analyses have suggested that intra-instrument differences due to differences in the design elements being adopted may be as important as inter-instrument ones (see del Río et al., 2012; Ragwitz et al., 2007; IEA, 2008).
6. Rogge and Reichardt (2016) use the term 'design feature,' whereas this chapter uses 'design element,' in line with the previous terminology used by the author.
7. There is no universally accepted list of abstract design features. For example, Rogge and Reichardt (2016) propose the following: stringency, level of support, predictability, flexibility, differentiation and depth.
8. However, the costs of RES-E have been reduced dramatically, particularly for wind on-shore and solar PV. Some have called into question the need for support (see Held et al. 2017 for a detailed discussion).

9. Our starting point is that these assessment criteria are contained either explicitly or implicitly in policy documents. In addition, other stakeholders have their own views on what are desirable assessment criteria, which are not necessarily contradictory to those of policymakers. Accordingly, the identification of relevant assessment criteria has been based on a combination of different information sources, including official national documents as well as country case studies included in energy and energy policy journals, which provide a relevant source of information on the challenges perceived by policymakers, reports from international institutions, EU-funded projects with a specific focus on assessment criteria of energy and climate policies and the grey literature (see del Río et al. 2012 for further details). There is no *a priori* unambiguously preferred ranking of criteria in the literature.
10. Balancing costs occur due to deviations from schedule of variable RES-E power plants and the need for operating reserve and intraday adjustments in order to ensure system stability. Profile costs are mainly back-up costs, i.e., additional capacity of dispatchable technologies required due to the lower capacity credit of non-dispatchable RES-E. Grid costs are related to the reinforcement or extension of transmission or distribution grids as well as congestion management, including re-dispatch required to manage situations of high grid load (Breitschoft & Held, 2013).
11. For reasons of simplicity, we focus on two targets and two instruments (either for the same target or for different targets). However, the analysis can be extended to more than two targets and instruments without loss of generality.

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28

AGILITY AND ROBUSTNESS AS DESIGN CRITERIA

Giliberto Capano and J. J. Woo

Introduction

Given increasing policy complexity and the occurrence of major economic, ecological and security crises that have often been attributed to failures in governing institutions and processes, there is growing interest among policy scientists and researchers on the means and mechanisms through which policy outcomes and processes can be made more robust and hence resistant to the impacts of unanticipated shocks (Duit et al., 2010; Geyer & Rihani, 2010; Howlett & Lejano, 2013; Howlett, Mukherjee & Woo, 2015). At the same time, there is a growing interest in how to promote policy agility, or the capacity of policymakers to react promptly and appropriately when policy stability is challenged and the expected outcome comes under risk (Howlett, Capano & Ramesh, 2018).

It is important to note that both concepts, robustness and agility, have been developed and adopted outside the policy design field. Regarding robustness, many initial efforts sought to find inspiration from studies in ecology and the natural sciences that focused on stability and resilience in natural eco-systems (Adger, 2000; Berkes & Folke, 2000; Duit et al., 2010; Adger et al., 2011), but the reality is that policy systems and ecological systems differ in many respects. Indeed, difficulty in applying existing understandings of ecological stability to policy systems has led to the conclusion that existing emphases on the ability of policy processes and systems to return to an equilibrium point in the aftermath of shock or crisis are inappropriate and misguided (Capano & Woo, 2017). From a policy design perspective, therefore, robustness should be considered in terms of its capacity to influence both stability and change.

Agility has received much attention in organization theory (Brown & Eisenhardt, 1998; Stern, 1997; Vera & Crossan, 2005; Moynihan, 2008), with a strong emphasis on how an organization's ability can contribute to its survival (Amabile, 1988). In this case, the translation of the concept in policy design terms needs to be adapted to the features of the 'object': policy agility can allow policymakers to pro-act or react in the proper way, thus adjusting the emerging anomalies to maintain the functionality of the policy and eventually changing some aspects of it. In other words, agility and robustness are drivers of both policy stability and change. For this reason, they are powerful elements to be taken into consideration when designing policies.

As a result, there is a need to understand the ways in which policy processes can be made more 'robust' and agile, allowing them to react in the proper way to eventual crisis or anomalies. Such

robustness and agility require policies, policy systems or policy processes to remain functional in the face of shock or crisis (Capano & Woo, 2017). In this chapter, we will discuss the principles and criteria underpinning robust and agile policy designs. We begin with a conceptual delimitation of robustness and agility, focusing in particular on their relevance for policy design. We then provide a brief overview of policy change and stability, before focusing on agility and robustness as criterions for policy design and on the conditions that allow their fruitful adoption.

Agility and Robustness in Policy Design

From a systemic perspective, policies can be seen as processes through which solutions to collective problems are defined, decided and implemented. Obviously, these solutions are not written in stone, as problems can emerge during their 'life-spans' and, perhaps more importantly, they can be challenged or changed by external or internal events. In other words, policies can encounter periods of uncertainty or meet with unexpected problems. The ways through which governments react to such uncertainty and/or emergent problems, as well as their efforts in preventing uncertainty or pre-empting new problems, is extremely relevant for both governmental and policy effectiveness. Governments, like any other kind of organization, should be capable of proactively identifying and responding to emerging policy challenges, so as to avoid unnecessary crises, and must carry out strategic and structural changes in an orderly and timely manner (Doz & Kosonen, 2008).

This capacity to adapt or respond to shock can be described as being agile—able to react in a flexible and fast way to any stimuli that can destabilize the constituent elements and characteristics of a given policy (especially in terms of legitimacy and outcomes). The concept of agility is well developed in studies of organization sciences and appears relevant for analyzing how organizations (whether public or private) survive both external and internal crises and find subsequent solutions to pressing issues (Agranoff, 2006). The same reasoning can be applied to policies that very often have to cope with unexpected problems or with unexpected effects. In understanding this characteristic of reaction in terms of agility, we hope to contribute to understanding the conditions necessary for policy effectiveness under shock or duress. Thus, agility should be considered a 'relative' property of governmental activities that depends on different factors (as we explore later) and contributes to the degree of robustness of the policy.

The concept of robustness comes from the natural sciences and refers to an ecological or social system's ability to maintain its functions or characteristics in a relatively controlled way in the face of external shocks or perturbations (Carlson & Doyle, 2002; Jen, 2005). Robustness in public policy has been adopted as a descriptive and explanatory concept, especially in the fields of environmental policy and climate change, where it has been defined as a "reduced sensitivity of outputs to shocks," whereby the system continues to function and outputs do not change despite variations in the inputs (Anderies et al., 2013).

The concept of robustness can be quite fruitful from a policy design perspective, because it can be considered a way through which policy can maintain systemic/institutional/policy functionality in the face of external or internal perturbations (Capano & Woo, 2017). The theoretical relevance of robustness has also been noted by scholars who focus the workings of institutions and, above all, in the way through which design institutions are capable of maintaining desired or expected goals despite structural or procedural changes (Goodin, 1998; Ostrom, 1990; Leeson & Subrick, 2006; Bednar, 2016). Thus, robust policies are those capable of performing or working well across a range of plausible futures or scenarios (Dryzek, 1983, Walker, Rahman & Cave, 2001). Robustness is something that allows policies to continue to perform, notwithstanding the cognitive gap of policymakers and the emergence of environmental uncertainty (Dryzek, 1983).

Agility and robustness, then, are quite intertwined with each other. If robustness allows policies to maintain their functionality under turbulence, agility allows robustness to work in the proper manner and in the due time, thus ensuring it is concretely implemented.

Stability and Change in the Policy Process

The recent interest in the conditions for policy stability that has emerged among policy scholars is not entirely new. Indeed, policy scholars have long been interested in the factors and conditions that either spark policy change or prevent policy change from taking place (Bennett & Howlett, 1992; Capano & Howlett, 2009). Hence, scholarly research has paradoxically focused primarily on how to spark policy change, as opposed to the more recent focus on stability. This change in direction can be attributed to the emergence of major government failures, such as the global financial crisis of 2009, which have stimulated greater interest in how policy processes can be made more robust and stable and, perhaps most importantly, what governments can do to ensure such robustness (Howlett & Lejano, 2013).

While change and stability would appear to be diametrically opposed, it is possible to extrapolate from existing understandings of policy change to address the conditions for policy robustness. Earlier understandings of policy change have assumed a passive process of change driven by social pressures and forces (Nordlinger, 1982), but it has become increasingly clear that policy change is very frequently the result of deliberate government action aimed at achieving a particular policy objective or set of objectives (Hall, 1993). This latter focus on policy interventions has done much to establish a more systematic understanding of the institutional and policy conditions that allow for policy change, yet there are still questions over the linkages between these conditions and policy change, as well as the nature of change itself.

With regards to the nature of change, policy scholars remain divided over whether policy change is innovative and disruptive in nature (Polsby, 1985; May et al., 2009; Williams, 2009; Breznitz & Ornston, 2013; Junginger, 2013), as well as whether it is the result of an incremental 'layering' of new policies onto an existing set of policies (Lindblom, 1979; Hogwood & Peters, 1983; Hayes, 2002). More than simply assuming a need to effect policy change, the question becomes: How should a government initiative policy change? And what sort of policy change should governments initiate? These questions pose significant implications for understanding robustness in the policy process, because much of both policy robustness and resilience emphasize incrementalism to varying extents (Capano & Woo, 2017).

Regardless, it suffices to say that there are varying understandings of policy change, involving varying components and levels of the policy process. At the broadest level, policy scholars such as Paul Sabatier and Elinor Ostrom have sought to situate policy change within the broader environmental and socio-political milieu within which policymakers are often embedded (Sabatier, 1988; Ostrom, 1990, 1998; Sabatier and Weible, 2007). For instance, Sabatier (1988) argues that policy change is often a result of the interests and actions of a dominant set of actors, or 'advocacy coalitions,' that are formed around a shared set of policy beliefs.

Such an actor-oriented understanding of policy change is strongly rooted in the policy subsystems or policy network approach, which emphasizes the role of key groups of actors in driving policy change (Kenis & Schneider, 1991; Howlett, 2002; Howlett et al., 2009), whether through exercising political influence (Rhodes, 1990; Smith, 1993; Rhodes, 1997), determining institutional configurations (Carpenter, 2001; Howlett & Ramesh, 2002; Jochim & May, 2010), defining the parameters of policy discourse and agenda-setting (Baumgartner & Jones, 1991; Haas, 1992; Stone, 2008, 2013) or directly defining the policy design process (Voss & Simons, 2014; Mukherjee & Howlett, 2015; Béland & Howlett, 2016; Woo, 2016).

Aside from policy subsystems and actors, there are also significant institutional drivers of policy change. Many of these take a historical institutionalist approach by focusing on how institutions can often define, or constrain, policy change through the formation of 'path dependencies' (Pierson, 2000; Peters et al., 2005). While path dependency can solidify and cement existing configurations of interests and institutions and hence emphasize incremental change, occasional disruptions, whether exogenously or endogenously driven, can give rise to more radical policy change (Baumgartner & Jones, 1991; Birkland, 1998; Jones & Baumgartner, 2005; Baumgartner et al., 2009.

Beyond such macro-level understandings of institutions, Bulmer (1994) has also emphasized the importance of institutional capacity in driving policy change.

Existing understandings of policy change tend to assume some level of endogeneity, i.e., that governments *want* to effect some form of policy change. We argue, however, that policy change and policy robustness (together with agility) are in fact two sides of the same coin. As we discuss, the design of robust and agile policies is predicated upon the need to either maintain policy process functionability or effect changes to these processes in the face of some internal or external shock.

Design Criteria for Policy Robustness and Policy Agility

Where related concepts such as resilience or stability focus on the retention of a policy process's *form* by reverting to a prior equilibrium point after a shock, robustness emphasizes instead the preservation of a policy process's *function*, especially in terms of the ability to maintain the delivery of policy outcomes despite shock and instability, as well to maintain the needed legitimation of the process itself that is a fundamental dimension of policy dynamics. Agility is the property that allows for robustness. It is important to note that sustaining the main functions of a policy does not necessarily equate to maintaining policy stability and thus blocking any type of change. In fact, what is relevant here is that the main functions should be preserved and, above all, the most relevant output and outcomes. Put in other words, robust and agile policies do not block policy changes; they ensure that even if the external/internal shock is a bearer of policy change, this change does not adversely impact the main characteristics of the policy itself. These characteristics are linked to the legitimation of the process and the expected policy results with respect to the target.

Legitimation is the fuel that drives not only the political but also the policy process (Beetham, 2013; Suchman, 1995), because what is at stake is the acceptance of power and its distribution, as well as the government's ability to attain public support for its policies, hence ensuring efficient and effective implementation. There are risks associated with delegitimation, for instance when a strong financial crisis gives rise to popular dissatisfaction. What matters is the agility to react in an appropriate way (for example by adopting non-conventional monetary tools) to re-stabilize the legitimation of the policy. At the same time, this agile action (that is, the bearer of a specific policy change, in terms of tools adopted) can allow for the recovery of a desired policy outcome (in this case financial stability). This agility allows governments to maintain the basic functionality of policy by changing some aspects of it. If such agility is achieved, the policy can be defined as robust.

The design criterion for policy robustness therefore focuses on maintaining 'functionability' and the 'functionality' of policy processes, while the design criterion for policy agility focuses on those characteristics that allow the proper reaction to the critical event or, eventually, its anticipation. In designing for robustness and agility, however, there is also a need to ensure clarity in our understanding of the shocks/changes involved. For instance, Capano (2009) has argued that a more systematic understanding of policy change requires closer attention to factors such as the

definition of the change involved, the type of change (incremental versus radical), the output of change (reversible versus irreversible), the level of abstraction and the causal mechanisms involved.

These factors can be further condensed into the nature of the shock or change, the nature of the design process and the nature of policy adaptation that is effected in response to the shock. To these, we add socio-political factors. As many have noted, the ability of policymakers to respond positively to shocks, as well as the ability of policy designers to ensure the relevance and efficacy of their policy designs, often depends on the ability of policymakers and designers to leverage socio-political factors for effective policy design (Sabatier, 1988; Rhodes, 1997; Schneider & Ingram, 1997; Ostrom, 1998; Howlett, 2009; Considine, 2012; Mukherjee & Howlett, 2015; Woo, 2016).

Nature of the Shock/Change

Before deciding on how policies and policy processes can be more robust, there is first a need to establish a clear understanding of the shock or change that policymakers are dealing with. Intuitively, one can think of such shocks as an unanticipated and relatively rare event or outcome that poses significant disruption to the policy system. Also often known as 'focusing events,' such shocks can impact the policy process at its various stages, including, but not limited to, agenda-setting, policy formulation and implementation (Kingdon & Thurber, 1984; Baumgartner & Jones, 1993; Birkland, 1998; Jones & Baumgartner, 2005).

There are various factors to consider when thinking about policy shocks. These include the magnitude of the shock, reversibility of change, number of people or communities affected by the shock, whether its impacts are temporary or more enduring and the tractability of policy effects and implications arising from the shock. While such factors are often measurable, it should also be noted that the severity of focusing events, as well as policy responses to these events, are often filtered through the lens of public perception and affected by socially constructed understandings (Schneider & Ingram, 1994; Birkland, 1998; Jones & Baumgartner, 2005; Birkland & Lawrence, 2009). Such socio-political aspects of focusing events will be discussed further below.

Nature of the Design Process

The ability of policy designers to ensure optimal policy adaptations to shock also depends on the nature of the policy design process. Broadly speaking, a policy design process comprises a set or 'mix' of policy instruments (Gunningham et al., 1998; Howlett, 2004, 2011; Howlett et al., 2015), with instruments categorized according to the policy goals or effects that they seek to achieve (Hood, 1986; Woodside, 1986; Elmore, 1987; Linder & Peters, 1990; Vedung, 1998) or the ways in which they attain these goals (Linder & Peters, 1988; Howlett, 2000; Lascoumes & Le Gales, 2007).

In almost all cases, the design process typically involves the design and/or selection of a specific policy instrument, or set of instruments, in response to a perceived need (whether an endogenously motivated desire for change or an exogenous shock), with the aim of effecting some form of policy effect, response or change. However, and as we discuss below, the process of policy design does not occur *tabula rasa*. Such ideal situations of 'good design' are often the exception rather than the norm. Rather, policy instruments are often designed and implemented within an existing configuration of actors and other policy instruments, and policy design tends to be driven by situational logics, bargaining and opportunities (Howlett, Mukherjee & Woo, 2014).

In light of these ambiguities, there is a need to ensure robust policy designs. Such policy robustness can be characterized by policymakers' capacity to maintain original problem definitions and manage the policy agenda, redesign policies in a coherent way when they produce negative effects, and ensure the presence of policy procedures, information systems and policy networks that can provide prompt feedback (Capano & Woo, 2017).

For these reasons, and others, ensuring robustness in policy design requires a stronger focus on systemic, organizational and individual capacity. This means building up the strengths, competencies and capacities of institutions, organizations and individuals, particularly in terms of their ability to ensure the functionability and legitimacy of the policy process (Painter & Pierre, 2005; Howlett, 2015; Woo, Ramesh & Howlett, 2015; Wu et al., 2015). There is therefore a growing focus on capacity building, in order to ensure greater robustness in the design process. Such capacity also allows for the formation and management of more manipulable design processes that are flexible or responsive enough to adapt in the face of shocks (Capano & Woo, 2017).

Policy design can also be an agent-centric process, with the presence of established interests such as policy monopolies or policy legacies giving rise to the risk of greater rigidity in the design process (Baumgartner & Jones, 1993; Mulvale et al., 2007; Miller, 2008; Capano & Woo, 2017). Conversely, policy systems that are more inclusive and open can encourage the integration of new policy ideas that can contribute towards the management of shocks and crises (Haas, 1992; Stone, 2000; Howlett & Ramesh, 2002; Stone, 2013; Mukherjee & Howlett, 2015). The presence of policy entrepreneurs capable of enacting broader policy reforms may allow for more responsive policy designs that can adapt to shocks (Kingdon, 1984; Bakir, 2009; Mintrom & Norman, 2009; Brouwer & Biermann, 2011).

Nature of Adaptation

At the more micro level, policy adaptations and responses to shocks also differ substantially. It has long been noted that policy change can either be incremental or radical in nature, with incrementalism reflecting marginal shifts from the status quo and radical change giving rise to more profound and paradigmatic change (Lindblom, 1979; Hall, 1993; Breznitz & Ornston, 2013). Other dimensions of policy change may include the speed or tempo of change, the direction of event progression and the scope of change (Capano, 2009).

From a design perspective, policy adaptations often involve changes to an existing policy mix. Such adaptations are predicated upon the assumption that the existing policy mix may no longer be capable of achieving its intended outcome in the face of an exogenous shock or change. Adaptations often involve piecemeal additions or omissions of individual policy instruments within existing policy mixes, through processes such as policy 'layering' and 'patching' (Béland, 2007; Howlett & Rayner, 2013).

Known as 'new governance arrangements,' such efforts at tweaking the internal dynamics of policy mixes are predicated upon the possibility of ensuring greater policy mix coherence and consistency (policy integration), although suboptimal outcomes can also occur when policy instruments and/or policy goals are misaligned, i.e. policy layering, patching or drift (Howlett & Rayner, 2007). A policy system's capacity to respond effectively to shock, in other words, depends on the ability of policy designers to include/omit the right policy instruments in an existing policy mix, in order to bring the policy mix back to a state of coherence and consistency. This capacity is based also on the level of agility among decision-makers, in terms of speed of reaction and possibility of choosing to select/omit policy instruments from a broad/small basket.

Socio-Political Factors

Aside from the nature of the shock and the various aspects of the policy design process, it is also important to take note of the impact of socio-political variables on policy robustness and agility. As Birkland (1996) has noted, the existing literature does not sufficiently address the reasons *why* governments sometimes choose to respond to focusing events, and at other times ignore them. Nonetheless, there is growing attention to political responsiveness to shocks and crises.

At the heart of these discussions is a focus on the 'attentiveness' of policymakers to focusing events, with such attentiveness determined by the 'image' of the focusing event that is presented to them at the agenda-setting stage of the policy process (Jones and Baumgartner 2005). Such 'images' are necessarily contested and often politically motivated or determined. The possibility of reform occurs when a focusing event causes the policy image to change in such a way as to favor the interests of the prevailing policy dictator (defined as a political party that holds both the relevant cabinet portfolio and the median legislator positions).

Aside from party dominance, the willingness of congressional committees to respond to a focusing event depends on the amount of news coverage, the number of people affected by the event, existing attitudes in favor of policy change and the mobilization of groups pressing for policy change (Birkland, 1996). Focusing events are also capable of stimulating political mobilization, especially among communities and individuals who are directly affected by the shock (Bishop, 2014). Such mobilization can give rise to collective action, which can in turn contribute to a policy system's ability to respond or adapt to shock (Ostrom, 1990, 1998; Chaskin, 2008).

At a broader macro level, political elections can in themselves become focusing events that serve to shape public perceptions of a policy image (Walker & Waterman, 2008). In short, policy designers need to be cognizant of the various socio-political variables that may impact a policy system's ability to address and respond to a shock or crisis.

Design Principles for Policy Robustness and Agility

As the discussion above has shown, designing for robustness and agility depends on variables and factors related to the nature of the shock, policy adaptations, design process and political institutions. More importantly, this discussion alludes to the possibility of defining ideal design principles for ensuring policy robustness and agility and identifying potential points of suboptimality. These are summarized in Table 28.1.

Table 28.1 Ideal and Suboptimal Design Principles for Robustness and Agility

	Ideal	*Suboptimal*
Nature of Shock/Change	Small, reversible, low impact, tractable	Large, irreversible, high impact, intractable
Nature of Design Process	High capacity, inclusive, manipulable, presence of policy entrepreneurship	Low capacity, exclusive, rigid, lack of policy entrepreneurship
Nature of Adaptation	Policy integration	Policy patching, policy layering, policy drift
Political Institutions	High trust and legitimacy, consensual, free and open media	Low trust and legitimacy, contested, restricted media

While the nature or type of shock that policymakers are faced with often lies beyond the control of policy designers, it is important to note that shocks that are smaller in magnitude, reversible and tractable in effects and affect a smaller range of people, tend to be easier to address and hence do not diminish the robustness of a policy system significantly. These factors are often well beyond the control of governments and policymakers, however, so there is still a need to focus on building up policy robustness and agility that can endure any kind of shock.

In terms of the design process, policy systems that exhibit high capacity in their institutions, organizations and individuals are more likely to be robust and agile. Such systems also benefit from greater receptivity and inclusivity to new ideas and contributions from external actors as well as being manipulable. The presence of policy entrepreneurs, and their ability to effect change, is also crucial for ensuring the system's ability to react or respond to shocks and also to eventually anticipate them. In terms of policy adaptations, existing understandings of policy design and new governance arrangements suggest a need to ensure policy integration, rather than suboptimal outcomes such as policy layering, patching or drift.

Lastly, the nature of socio-political institutions in a policy system can impact the system's robustness and agility as well. For instance, political systems that command a high level of trust and legitimacy from its citizens are more capable of enacting swift policy responses during a crisis. This is also predicated upon institutional conditions that allow for swift decision-making in the first place, such as majoritarian decision-making in parliamentary systems (Moe & Caldwell, 1994). Furthermore, the presence of a free and open media that is at the same time not captured by vested interests can allow for more objective reportage, facilitating the movement of pressing issues up the policy agenda.

We have shown how agility and robustness are relevant for public policy and how they represent a relevant driver of policy dynamics in terms of stability and change. But which kind of characteristics does the formulation process possess in order to guarantee policy agility (the capacity to react in due time and in the proper way) and robustness (the capacity to maintain the functionality of the policy while at the same time introducing specific changes in the adopted solutions)? The literature indicates three key characteristics that should allow policy formulation to reach robust and agile policy design (Goodin, 1996; Lowndes & Roberts, 2013; Bednar, 2016): diversity, modularity and redundancy.

Diversity in design refers to the proper distribution of power through the presence of different nodes or centers of authority and the assignment of political and policy roles to different interests. From this point of view, polycentric systems are more capable of formulating robust policies than monocentric ones. Indeed, polycentric policies are programmatically designed to promote diversity through the inclusion of a broader array of new ideas and information. Furthermore, such diversity through polycentricity has been shown to facilitate adaptive policy processes and policy learning (Pahl-Wostl, 2002; Huntjens et al., 2011; Cole, 2015). Diversity may also refer to the range of sources needed for a policy to perform: for example, a certain grade of diversification of sources is a 'must' in energy policy to avoid any risk of shortage due to different possible causes (Jamasb & Pollitt, 2008; Vivoda, 2009). From this point of view, diversity can guarantee agility, because it ensures the presence of different stakeholders who are responsible for policy outcomes. This allows different points of view that can also offer the chance to anticipate potential crisis. It is quite clear that diversity implies a strong capacity to coordinate and steer policy dynamics, with this capacity often dependent on the features of governance arrangements and of the design process.

Modularity means that policies should be designed by breaking down the scope of the problem to be resolved and addressing the components of the problem through a specialization of contexts and arenas. Through modularity, policies can be designed to be composed of clusters/arenas that interact with each other but are not necessarily highly interconnected (Simon, 2002).

The modularized design gives rise to two positive outcomes: on the one hand, it allows for more possibilities of innovation, and on the other it prevents systemic general failure when one of the modules fails to perform properly.

Finally, redundancy allows for a policy's main functions to work even if some of its parts (institutions, organizations, policy instruments, etc.) fail to deliver due to some unexpected event or development. To design redundancy into a policy requires the strategic introduction of duplication and overlapping functions or properties. For instance, the raising of more 'pillars' in pension policy (Natali, 2008) presents a way of designing and planning redundancy to ensure pension coverage in the long run. At the same time, the adoption of competition-driven policies in many policy fields in the last decades can be read as a way through which inter-organizational policy redundancy can be introduced (Miranda & Lerner, 1995).

The design of diversity, modularity and redundancy into policies should be carried out in an integrated and calibrated manner, as an excessive focus on one individual characteristic could give rise to policy failure or disruption. For instance, excessive diversity could result in gridlock, especially if contestations occur between different decision nodes. Similarly, policy designs that are too modular could result in a lack of integration in the overall design, with policy outcomes either disrupted or only partially achieved. Lastly, overly catering for redundancy can be costly, as resources are unnecessarily devoted to maintaining an excessive level of slack that is rarely, or even never, utilized. As the saying goes, all things in moderation.

Ensuring the right amount of diversity, modularity and redundancy requires policy designers to take a 'bird's eye' view, in ensuring that policies retain a fine balance of the three characteristics. There is therefore a need for some level of coordination and general arrangement of these characteristics, and the introduction of hierarchy (or ordered priority of the three characteristics) into the designed output. However, and as we have discussed above, designing robustness into policy also depends on a certain level of flexibility and agility, both in policy designs and the design process itself. Such agility ensures that policy functions are maintained, or their components adapted, in order to maintain such functionality in the face of disturbance.

Agility is also possible when policy designers have at their disposal new ideas, good information, opportunity and motivation for learning and functional substitutes, i.e., a well-designed mix of policy diversity, modularity and redundancy. In other words, there is both rigidity and flexibility involved in the design of diversity, modularity and redundancy into policies—'external' rigidity in terms of the centralized and hierarchical coordination needed to maintain a suitable mix of the three characteristics and 'internal' flexibility in terms of these three characteristics' role in ensuring a policy's ability to adapt and adjust in order to maintain functionality in uncertainty. There is therefore a dual aspect of diversity, modularity and redundancy that, when managed well, gives rise to robust design but, if managed badly, could give rise to problematic policy designs.

All in all, robust and agile design should be based more on procedural instruments than on substantive ones. From this point of view, then, the proper mix of diversity, modularity and redundancy can be designed by establishing borders for actors' behavior, assigning roles and establishing specific procedures for coordinating, evaluating, monitoring and revising the actual design.

Conditions for Robust and Agile Design Processes

The production of design outputs capable of guaranteeing robust and agile policy also depends on the features of the design process, not only at the at the stage of formulation but also at the stage of implementation. This means the policy process should possess certain characteristics that allow policymakers and designers to (re)design and revise an existing design, especially in the face of abrupt shifts and changes, to maintain an expected grade of policy robustness.

Robust policy designs are driven by robust and agile design processes. These processes include the structural and procedural features through which decision-makers design policies. Designing robust and agile policies requires that specific attributes be present in the process of design itself. Robust and agile design processes require more than the three characteristics discussed above. At this level of the policy design process, diversity, modularity and redundancy culminate in the property of 'polycentricity.' Polycentricity in turn refers to the presence, with various and different roles, of a plurality of actors as well as organizations in the design process. This pluralism, if well governed, can lead to a favorable configuration of interest, ideas and information that can in turn give rise to a 'variance' of possible policy responses necessary for ensuring agility and flexibility in the face of unexpected disturbances.

Polycentricity does not mean, obviously, the absence of either hierarchy or of strong coordination, as we know from the substantial literature on governance arrangements (Capano, Howlett & Ramesh, 2015a, 2015b). Rather, the focus of polycentricity is to ensure greater capacity, and legitimation, to deal with the multifaceted challenge of defining problems and solutions (McGinnis, 2000; Ostrom, 2010). Seen from this point of view, the relevance and strength of polycentricity as a condition for robust policy design also encompasses the adoption of participatory tools; for instance, Michels (2011) has found that policy instruments that foster citizen participation, such as referendums, deliberative surveys, participatory policymaking or interactive governance, and deliberative forums, can give rise to more robust policy outcomes and procedures.

But a polycentric decisional structure is only one of the conditions (representing the aggregation of diversity, modularity and redundancy) needed for robust design processes.

As we know from the more recent literature on policy design, good design processes need to be characterized by a significant political capacity as well as a high level of technical capacity (Howlett et al., 2015; Capano, Regini & Turri, 2016). Both political and technical capacities are important for designing robust policies. For instance, political or 'legitimation' capacity, or the strength of government in building up consensus around a specific design, is not only crucial for facilitating timely and efficient decision-making, but is also an important factor in ensuring the presence and functioning of the polycentric decision processes that are so crucial for robustness (Woo et al., 2015).

Technical capacity directly refers to the ability of governments to make intelligent choices (Painter & Pierre, 2005), which implies the ability to set the right strategic directions (Howlett & Lindquist, 2004), weigh and assess the implications of policy alternatives (Bakvis, 2000) and base decisions on a dense and appropriate use of evidence-based policy-making (Parsons, 2004). Technical capacity, then, directly refers to a specific set of skills or competencies necessary for the nourishment of analytical capacity, which relates to the effective assessment and use of policy advice in support of the decision process (Xun, Howlett & Ramesh, 2017).

Hence, there is a need to establish the capacities for evaluating and utilizing the various available informational resources—whether these are data collected by the government or provided by policy advisory organizations—in support of policy robustness. It is quite clear that analytical capacity depends on various factors, including the institutional and bureaucratic characteristics of a political system; the features of the related policy advisory system; and the level of openness of the decision-making process to external interest groups and advocacy coalitions.

To summarize our argument, robust and agile design process can be developed by establishing a *polycentric decisional structure* and ensuring sufficient *political capacity* to ensure the legitimacy of the design process as well as the relevant *technical capacity* necessary for effective policymaking. The presence of these conditions is necessary for the initial design as well for subsequent stages of the design process when, faced with evolving policy dynamics and shifting circumstances, the content of a specific policy could need to be revised and eventually redesigned to maintain expected policy functions and retain its focus on intended goals.

The initial design is fundamental: at the very inception of the policy, the design equips the policy with the necessary attributes of a robust policy design, as discussed earlier. The characteristics of a robust and agile policy (diversity, modularity and redundancy) can subsequently be calibrated through the application of deep analytical capacity and garnering of political consensus and legitimacy from the policy's multiple stakeholders. Such robustness in the design process can therefore ensure that timely and relevant (thus agile) interventions are formulated and applied to ensure continued policy functionality should any disturbances emerge to disrupt or challenge existing policy activities.

The three conditions for robust and agile design processes we have just presented offer a general framework that needs to be operationalized in order for it to be used either as an explanatory tool to understand why some design processes are less robust and agile than others or as a practical applied tool for redesigning the features of actual policy processes, with the aim of improving their robustness and agility.

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29
HOW TO SEQUENCE POLICIES
The PM-ARM Approach

Araz Taeihagh

Introduction

Many policy problems are considered to be 'wicked' due to the technical, institutional and political challenges in addressing them (Rittel and Webber, 1973). Given this understanding of the challenges of addressing policy problems, the experience gained from attempts to tackle such problems through various actions and the exchange of knowledge and experience gained in the process, policymakers seldom face the problem of having too few actions to choose from; rather, they now often face the opposite problem of having too many options to explore (Taeihagh et al., 2013).

Putting aside the debate on the extent to which policymakers or analysts follow a rational process for finding the best course of action to follow (Kingdon, 1984), the number of possible actions that can be taken is considerable. This phenomenon is not limited to one domain. In environmental policy, Sheate et al. (2003) report on the consideration and impact assessment of more than 200 policy measures for identifying suitable environmental policy alternatives as part of the LA 21 project in Austria. Similarly, the Productivity Commission (2011) collected more than 1000 carbon emission-related policy measures in nine countries, ranging from limited carbon emissions trading schemes to policy measures that supported specific abatement technologies. In transport policy, the Visions-2030 project identified 142 measures to promote walking and cycling in cities in the UK (Tight et al., 2011); 128 policy measures were identified in the *Handbook of Road Safety Measures* (Elvik et al., 2009). In energy policy, De Almeida et al. (2011) report on the MURE policy measure database from the EU-IEE ODYSSEE-MURE project, which contains more than 160 policy measures addressing the electricity consumption of appliances and equipment. In social policy, Unger et al. (2015) report that, as part of a Peer Learning Initiative for the Social Dimensions PL4SD project, more than 300 policy measures aimed at enhancing social dimensions in higher education were collected in three rounds of data collection from 2013 to 2015. Last but not least, in education policy Keck et al. (2009) report that more than 140 policy measures to support families with children in Germany were identified, addressing a range of factors including income and special needs such as pregnancy, unemployment and large numbers of children.

Policymakers face increasingly complex questions about what courses of action to take and, specifically, what to do first, due to the availability of a large number of options (referred to as 'policy measures' in this chapter), as well as the theoretical and empirical information available

on each policy measure, including various influences from political and social actors. However, policymakers have bounded rationality and thus find it difficult to utilize all this available information effectively (Simon, 1957).[1] This has resulted in inertia and the consideration of only a limited number of alternatives (Jones et al., 2009; Kelly et al., 2008). As there is no silver bullet in policymaking, the efficient and effective advancement of a policy requires consideration of a combination of policy measures as part of a policy package (May and Roberts, 1995; Feitelson, 2003; OECD, 2007; Taeihagh et al., 2013). A 'policy package' is defined as

> a combination of individual policy measures, aimed at addressing one or more policy goals. The package is created in order to improve the impacts of the individual policy measures, minimize possible negative side effects and/or facilitate interventions' implementation and acceptability.
>
> *(Givoni et al., 2010, page 4)*

A key factor in policy packaging is the inclusion of more than one policy measure in the package, and explicit consideration of the relationship between these policy measures with the aim of including mutually supportive measures and avoiding potential contradictions. The importance of policy packaging is evident and acknowledged, particularly when addressing complex policy problems that require implementation of multiple policy measures. At the same time, however, there is little knowledge about how to build and sequence these policies.

This chapter addresses these problems by presenting a methodology for the analysis and ranking of policy measures that can be used when creating new policy packages, or for when existing policies are in place and to be revised. This methodology will facilitate policymakers and practitioners in exploring a large number of policy measures and their interactions, simultaneously building on the previously developed frameworks and methodologies in the application of network theory and Multi-Criteria Decision Analysis (MCDA) for policy design (Taeihagh et al., 2009a, 2013).

The methodology presented is generic and can be applied by various users, including policymakers (the term used in this chapter), domain experts or any other stakeholder participating in this process in different domains. It aims to provide policymakers with a tool for exploring a large number of policy measures and their interactions by visualizing and mapping the relations between such policy measures and by providing an approach for ranking the measures. This methodology is not designed to provide users with an 'optimal solution' but to aid in better analyzing a large number of policy measures and better understanding why a specific policy measure seems to perform better than others given its intrinsic characteristics (such as cost) and its interactions with other policy measures, given user-defined criteria sets.

In the remainder of this chapter, first policy measure analysis and ranking methodology is presented. Afterwards, the details of the approach and how to build an inventory of policy measures; define, classify and store different types of relations between policy measures; and how to use this information for the visualization and analysis of policy measures for policy packaging and patching is discussed. Subsequently, a brief case study on the application of the approach is presented before providing suggestions for future work.

The Policy Measures Analysis and Ranking Methodology (PM-ARM)

As the examples provided in the introduction suggest, when faced with specific policy problems, policymakers can at times have hundreds of policy measures to explore. The PM-ARM methodology (Taeihagh et al., 2013) provides the ability to systematically analyze and rank all

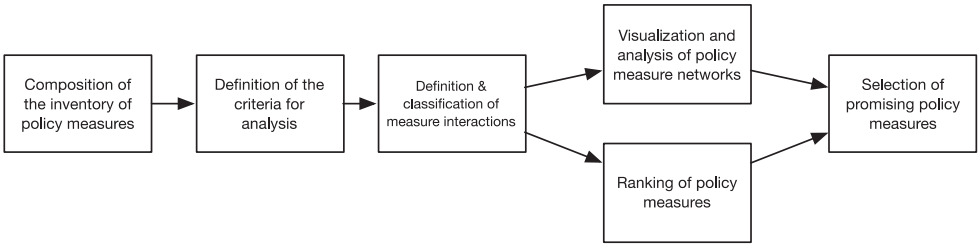

Figure 29.1 The PM-ARM Methodology, Its Components and Stages for the Analysis and Ranking of Policy Measures for Designing a New Policy

Source: Taeihagh et al., 2013.

these policy measures and assist policymakers in identifying a set of measures to implement first. The ranking of policy measures is based on user-defined criteria or criteria sets that examine the policy measures for effectiveness vis-à-vis the policy target(s) and their efficiency in conducting the task. The efficiency of the policy measures depends on issues that affect implementability, for example overcoming technical, institutional and social complexities that can manifest in issues such as transaction costs[2] or social acceptability. The PM-ARM methodology, its components and stages used for the analysis and ranking of policy measures, are presented in Figure 29.1.

The first step in the application of the PM-ARM methodology is the composition of an inventory of primary policy measures of various types (economic, regulatory, technological, etc.) that directly affect the policy target. The next step is to decide on the appropriate criteria for examining these policy measures. The criteria can be qualitative or quantitative, depending on the nature of policy measures and the availability of information about them in the specific context in which the PM-ARM is applied. After defining the criteria, the properties of the policy measures in the inventory are examined by the analyst and translated into scores (values ranging from 1—low to 5—high).

The aforementioned steps constitute the initial stages of PM-ARM, are similar to standard MCDA practices and can be used on their own for ranking policy measures. The differentiating factor in PM-ARM stems from the next three steps, which provide additional and vital information that can result in more robust decisions that cannot be attained by simply applying a traditional MCDA approach:

1. Definition and classification of policy measure interactions;
2. Visualization and analysis of policy measure networks; and
3. Ranking and assessment of policy measures.

Definition and Classification of the Relationships Between Policy Measures

An important step in PM-ARM is to examine and capture the interactions between policy measures. There are five types of mutually exclusive relations among policy measures: precondition, facilitation, synergy, potential contradiction and contradiction (Table 29.1, Taeihagh et al., 2009b, 2013). These five types of policy measures have been deemed sufficient for capturing the interactions among policy measures. Subsequent to the definition of policy measure

Table 29.1 The Different Types of Relationship Between Policy Measures

Relation Type	*Description*
Precondition (P)	Defined as a relationship that is strictly required for the successful implementation of another policy measure. For instance, if policy measure B is a precondition of policy measure A, the successful implementation of policy measure A can only be achieved if policy measure B is successfully implemented beforehand. This is a directed relationship.
Facilitation (F)	In a case where a policy measure 'will work better' if the outcome of another policy measure has been achieved, the relationship is considered as a facilitation. For instance, policy measure B facilitates policy measure A when policy measure A works better after policy measure B has been implemented; however, policy measure A could still be implemented independently of policy measure B. This is also a directed relationship.
Synergy (S)	A special case of facilitation in which the 'will work better' relationship is bidirectional (undirected relationship). It can be argued that such a relationship can be treated as a two- way facilitation; however, we believe that treating it as a separate type is advantageous, as it suggests a higher effectiveness of both of the policy measures having the synergetic relation vis-à-vis the overall policy.
Potential Contradiction (PC)	A potential contradiction exists between policy measures if the policy measures produce conflicting outcomes or incentives with respect to the policy target under certain circumstances; hence the contradiction is 'potential'. This relationship is undirected.
Contradiction (C)	In contrast to the conditional nature of potential contradiction, the contradiction relationship is defined when there are 'strictly' conflicting outcomes of incentives between policy measures. Like potential contradiction, this relationship is undirected.

Source: Taeihagh et al. 2013.

relationship types, experts have used various combinations of them given the context and their preferences.[3] Additional types of policy measure relationships can be defined if deemed necessary by experts and used in PM-ARM to better capture the policy measure relationships.

The classification of the relationships between pairs of measures is performed by experts (such as policymakers, analysts and domain specialists) and stored in an adjacency matrix. The adjacency matrix is multi-relational and can be used to store different types of mutually exclusive relationships between policy measures. A study consisting of n policy measures results in a network with n nodes. Thus, an n by n adjacency matrix is created. Each element of the adjacency matrix represents a relationship between the two nodes in the corresponding row and column. A relationship between nodes a and b (which can be directed or undirected) represented in the n node network of policy measure exists between the two nodes if element (a,b) of the matrix is P, F, S, PC or C, based on the type of relationship between the two policy measures (nodes).[4]

This classification task can be carried out individually or in a group setting. The collective decision for identifying the relationships between policy measures is advantageous and likely to increase the robustness of the analysis, as complex relationships often exist between the policy measures and it can be difficult to distinguish between two measures. To simplify the task of classifying policy measures, analysts should only consider the relationship between two measures at a time, independently of other policy measures in the inventory. Using an iterative approach in which at least one iteration is performed for classifying each type of interaction between policy measures, then

sharing in a group setting, is important to avoid inconsistencies and for the correct identification of relationship types (Taeihagh et al., 2013). This accords with research showing that if more information is examined by individual group members, better information sharing can take place and collective learning can occur, as by applying this process analysts can better understand the policy measure interactions and develop a collective understanding of the information analyzed (Larson et al., 1994; Wittenbaum, 2000; Camagni, 1995). Splitting such a decision-making process into two phases of information search and integration and decision-making can improve the results as more relevant information is gathered, shared and then utilized in a group (Brodbeck et al., 2002).

Theoretically, it is possible to obtain a more nuanced definition of the relationships between policy measures by considering the strength of those relationships. This can be achieved by assigning weights to the edges in the network of policy measures to better capture the interactions of the policy measures in real life. It is certainly possible to justify the strength of some policy measures, particularly when they are technological or economical, as they are then more likely to be readily quantifiable; however, extending this justification to the entire network and all policy measure interactions renders the extent to which the relationship between two policy measures can be quantified questionable (e.g. the level at which facilitation increases effectiveness; Taeihagh, 2017). Nonetheless, if the experts involved are confident in their ability to assess the effect of policy measures on one another, or if appropriate models exist or can be developed to provide such information, weighted networks can be used.

Visualization and Analysis of Policy Measure Networks

Following the definition and classification of the policy measure relationships, the visualization and analysis of the policy measure networks can be carried out. The basis of such policy measure networks is the definition of the nodes (policy measures) and the edges (policy measure interactions), which can be used for visualization and analysis and as a final check on the validity and integrity of the defined policy measure relationships and networks they form.

Figure 29.2a illustrates a sample multi-relational adjacency matrix, and Figure 29.2b is the resulting visualization based on the adjacency matrix from Figure 29.2a. In Figure 29.2b, node 1 is facilitated by nodes 2 and 3 and nodes 4 and 1 have a synergistic relationship, while nodes 2 and 4 have a potentially contradictory relationship. Nodes 2 and 4 are preconditions to node 3 and need to be implemented before node 3 can be successfully implemented.[5]

ID	1	2	3	4
1	0	F	F	S
2	0	0	0	PC
3	0	P	0	P
4	S	PC	0	0

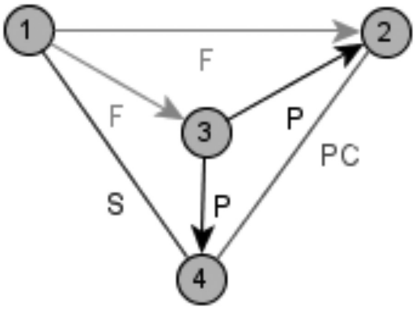

Figure 29.2 a) Sample Multi-relational Adjacency Matrix and b) Network Visualization of the Sample Data
Source: Taeihagh et al., 2013.

When a large number of policy measures are considered in a study, the corresponding multiplex[6] network of policy measure interactions formed based on the multi-relations adjacency matrix provides an overview of the various policy measure interactions. Potential visualization of the network can, however, become difficult; the multi-relational adjacency network can thus be decomposed to into individual adjacency networks that only contain a single type of relationship. For instance, based on the previously defined five types of policy measure interactions, five policy measure networks are formed corresponding to these five types of relationships.

The visualization of these separate networks of policy measure interactions and their analysis by experts serve as the final check on the integrity of the data. Following the formation of these networks, analysis of the interactions of the policy measures can be performed. For instance, it is possible to identify and visually represent the most central policy measures in a precondition network (see Figure 29.3). These measures are either *dependent* (i.e., those that require the implementation of a large number of policy measures beforehand for their successful implementation: in Figure 29.3, PM 112 depends on implementing four policy measures beforehand (2, 70, 61 and 3)) or *enabling* and most helpful to other policy measures (i.e. they make implementation of many other policy measures possible, as they are required for implementation of these 'needy' measures beforehand: in Figure 29.3, PM 56 enables the implementation of policy measures 61, 57, 21, 7, 13, 10).[7] Furthermore, as Matt et al. (2013) point out, in the examination of facilitation or synergy networks for consideration in a policy package, it is possible to identify policy measures that may have a limited effect or are disjointed from other policy measures that are facilitating or have synergistic relationships and drop them from consideration.

Moreover, explicit mapping of policy measure relationships that are temporal in nature, such as precondition networks when complex relationships exist among policy measures, enables the application of algorithms to explore sequencing of policy measures in such a way that allows for a greater number of options for selection and implementation in the future and thus increases flexibility (see Taeihagh et al., 2009a for such examples). By using the precondition networks in this way and taking such factors into consideration from the beginning, it is possible to pursue far more dynamic thinking regarding possible future changes that might occur over time and to more easily make future adjustments and tweak policies. In addition, explicit consideration of different types of relationships such as synergistic and facilitation relationships among policy measures in patching or packaging of policies can help to increase efficiency and/or effectiveness of policies and improve their chance of success over time.

Ranking and Assessment of Policy Measures

Rank ordering of alternatives rather than directly choosing the best alternative will likely result in the consideration of more options and their trade-offs, facilitate the exchange of information about unpopular alternatives and result in overall better decisions (Hollingshead, 1996). Given our bounded rationality, it is difficult to consider all possibilities; as with choosing the appropriate initial conditions in solving complex mathematical equations, it is vital to choose appropriate starting policy measures in the designing of policies (Taeihagh, 2017). By developing a ranking and assessment methodology based on user-defined criteria, the internal properties of policy measures and their interaction with other measures in various networks, it is possible to quantitatively compare the merits of various policy options—either policy

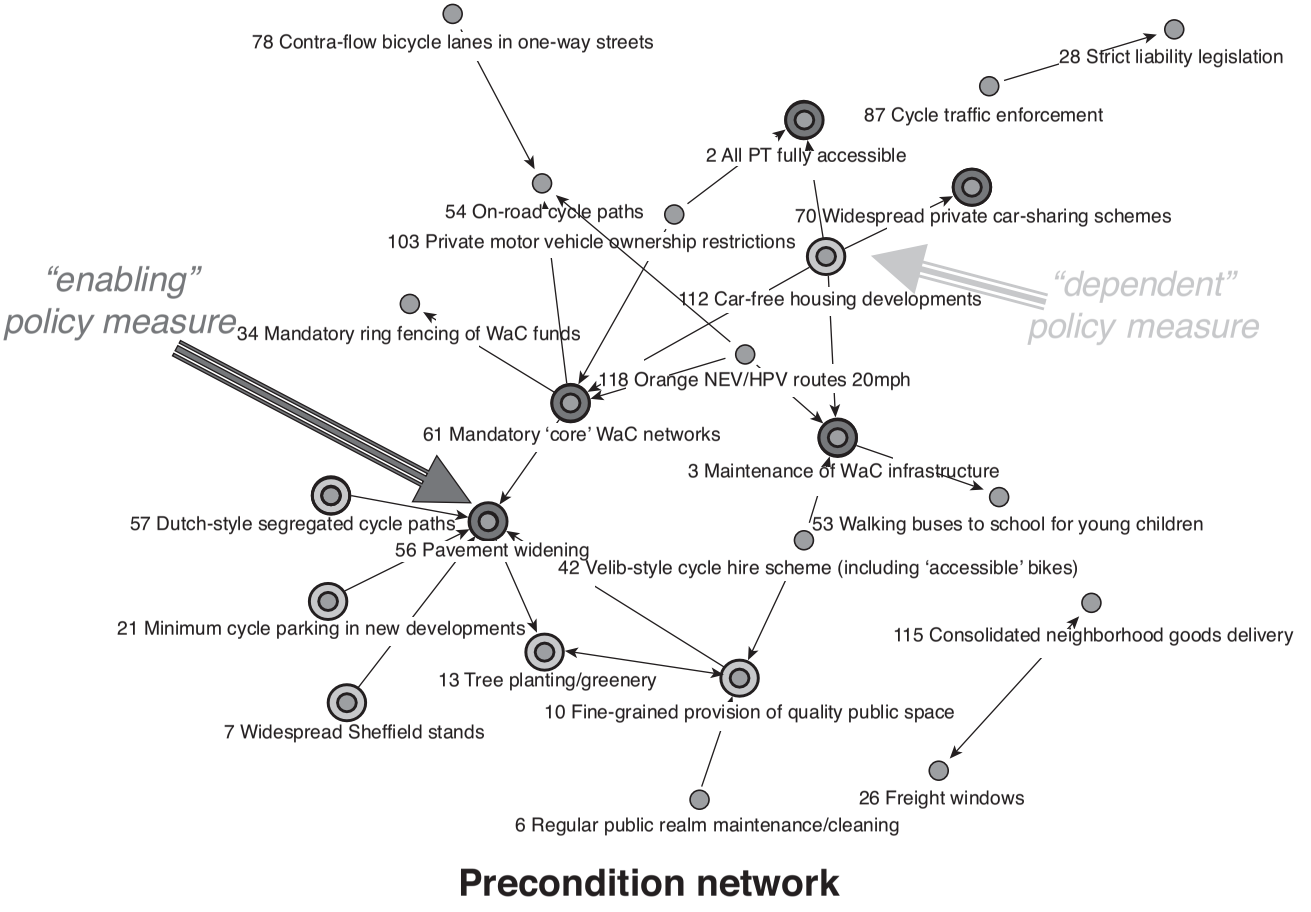

Figure 29.3 Visualization of the Precondition Network Among Policy Measures Considered for Promoting Active Transportation

Source: Taeihagh et al., 2013.

measures or their combinations in the form of policy packages (see Taeihagh et al., 2014; Justen et al., 2014).

The general methodology used for combining the information about policy measures in the library and the relationships between them for ranking purposes is presented below. Although it is possible to design a fixed structure based on the aforementioned building blocks, given the complex nature of policy problems, context (whether geographical, temporal, political or even the attitude and perceptions of experts) almost always plays an important role, and it is important to have the flexibility to address a problem. Figure 29.4 illustrates the proposed structure for the ranking and assessment of policy measures in a given network.

The initial step required for ranking policy measures (as presented in Figure 29.1) is the definition of a set of attributes for the measures in the policy measure inventory. These properties can go beyond considering factors such as effectiveness, cost and time and can include characteristics that affect the efficiency of policy measures, such as levels of institutional complexity or public acceptability and considerations of the network characteristics. One significant departure that this network-centric MCDA (NMCDA) approach makes from traditional MCDA is considering the relationships between policy measures in the network(s).[8]

Weights in each criteria set are fixed to the sum of one and are positive. Every criterion within each set falls into one of two categories (desirable or undesirable). A criterion is considered desirable when a higher score is considered better, such as in the case of effectiveness, and undesirable when a lower score is better (e.g., cost or the time required for implementation). In case a mix of both desirable and undesirable criteria is present within a set, by using the reciprocal of the values associated with the undesirable criteria, the scores can be transformed to desirable (Grunig and Kuhn, 2009). The scores obtained for all categories are expressed as a proportion of the sum of all scores for each criterion, then calculated as the weighted summation of all the scores each policy measure has obtained across different criteria (desirable or undesirable). As such, the ranking score of a measure in a given criterion set is calculated using Equation 1. A policy measure with the highest score in that set is the top-ranked policy measure in that particular set.

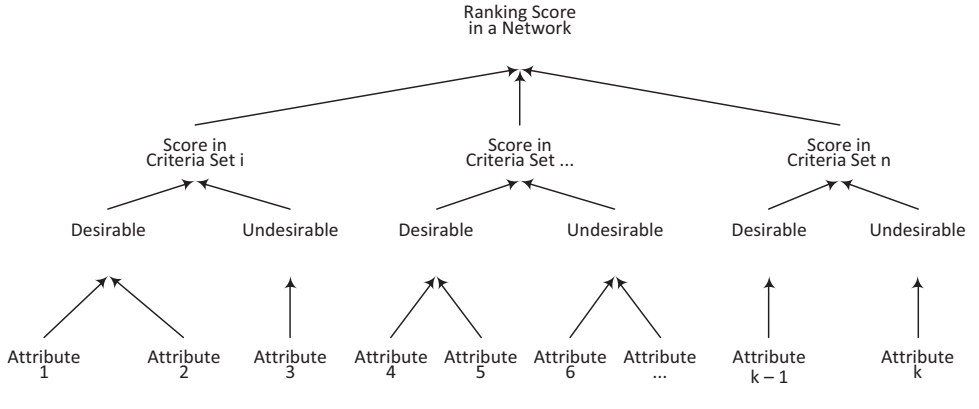

Figure 29.4 Proposed Structure for the Ranking and Assessment of Policy Measures in NMCDA in a Given Policy Measure Network

Source: Taeihagh, 2011.

In Equation 1, the first term on the right side is the score of a policy measure in the desirable criteria and the second term is the score for the undesirable criteria for that measure. The final score of a measure in a particular network is the weighted summation of all the criterion taken into consideration. Ranking of the policy measures can be further aggregated in multiple networks if experts deem such aggregation to be beneficial and logical given the context of the study. Effectively, this methodology converts information on qualitative relations into quantitative scores.

While it is possible to consider all of the network information available for ranking policy measures, it is equally important to avoid the temptation of over-simplification and making unnecessary assumptions that often plague the application of computational approaches when addressing such issues.

Equation 1 Calculation of the Ranking Score of a Measure in a Given Criterion Set

$$\textit{Score of policy measure } k \textit{ in a set: } S(k) = \sum_{j=1}^{d}\left(\frac{c_{k,j}}{\sum_{i=1}^{p} c_{i,j}} \times w_j\right) + \sum_{j=1}^{u}\left(\frac{\frac{1}{c_{k,j}}}{\sum_{i=1}^{p}\frac{1}{c_{i,j}}} \times w_j\right) \tag{1}$$

Where:
d: number of desirable criteria
p: number of policy measures
$c_{i,j}$: score of the measure i with respect to criterion j
w_j: weight assigned to criterion j
u: number of undesirable criteria

We use the precondition relation for ranking policy measures, but other relationship types can also be included in the policy measure assessment if deemed to fit. Given the definition of a precondition by consideration of the precondition relationships, the nodal information for each criterion under consideration is aggregated. For instance, the total cost is the sum of the cost of a policy measure as well as the cost of the policy measures that are its preconditions. Other calculations follow approaches common to the traditional MCDA approaches, but here we also account for the precondition policy measures. In all calculations for the ranking of policy measures, the following two assumptions are made: a) a measure will only work in case all of its preconditions have been implemented previously, and b) it cannot be assumed that all preconditions can be implemented in parallel. Consequently, in various calculations that include preconditions, a sequential implementation order is assumed, which results in the upper bound limit (e.g. the total time required is the summation of the time required for a policy measure and its preconditions (Taeihagh et al., 2013). This approach aids in systematic consideration and ranking of policy measures and in examining their trade-offs. The results of this analysis can assist us to identify policy measures, or sets of policy measures, based on user-defined criteria, that perform better and can form the basis for consideration in policy packaging or the patching of existing policies.

It is worth mentioning that often a large number of cycles of five or more policy measures can exist within a large policy measure network (Taeihagh et al., 2009a). Numerous methods exist for identifying these cycles, for example Extractcycle of the Combinatorica package (see Johnson, 1975; Mateti and Deo, 1976; Pemmaraju and Skiena, 2003). Ranking and assessing policy measures, as well as analyzing the relationships between the measures, enable a better understanding of

these cycles. This knowledge about the cycles within the policy measure networks is particularly relevant for sequencing and implementation, as it helps break down the cycles most appropriately and find the most feasible order of implementation based on the defined criteria for analysis (e.g. maximum effectiveness with the lowest cost and time required for implementation). Policy measures that form a cycle have different degrees of importance, cost, implementation time and so on. The appropriate scheduling of their implementation can thus result in significant gains.

While incomplete information, biases and errors can result in misjudgments about the characteristics of policy measures and their relationships, given the advantage of the PM-ARM approach in utilizing computational analysis, it is possible to conduct sensitivity analyses and carry out Monte Carlo simulations. Such sensitivity analyses have been performed on the effects of random errors in defining policy measure relationships and the weights assigned to the criteria used for ranking of policy measures in detail; the robustness of the ranking system has been demonstrated (Taeihagh, 2011).

Using PM-ARM When an Existing Policy Is in Place

PM-ARM is also applicable when an existing policy is in place, with the aim of enhancing the policy (Figure 29.5, also known as policy patching; see Howlett and Rayner, 2013). An additional step needs to be performed when an existing policy is in place and is under consideration for enhancement. This step is the explicit mapping of existing policy measures. Once these are mapped and added to the inventory of policy measures, using PM-ARM is very similar to a case in which a new design is being explored. The existing policy measures, as well as the new policy measures (of various types) that are under consideration, are then added to the inventory of policy measures. The next step is identical to identifying the appropriate criteria for examining these policy measures as explained earlier. Following the definition of the criteria, the properties of all of the policy measures in the inventory are examined. Following this, analysts should define and classify the relationships of all of the policy measures and visualize and analyze all the policy measure networks that constitute both existing and new policy measures under consideration. Finally, all of the new policy measures should go through the ranking and assessment process. The selection of new policy measures to enhance the existing policy can then be carried out using the knowledge gained from the various stages of the PM-ARM methodology. As such, 'policy packaging as a verb' after application of the PM-ARM methodology becomes possible in cases in which existing policy measures are in place. This can be achieved through use of decision support systems or manually (Taeihagh et al., 2014; Justen et al., 2014).

A Short Case Study in the Application of PM-ARM

Transportation is a major driving factor in economic growth and lifestyle, as well as a catalyst for globalization, but it is also a major contributor to air pollution and climate change; 23% of global carbon emissions are from transport (Allwood et al., 2011). In transportation, a major focus is on increasing the levels of walking and cycling (W&C), which can result in the reduction of emissions and the promotion of health and wellbeing (Boarnet, 2006; Rietveld and Daniel, 2004). A number of countries have successfully promoted policies to increase the rate of W&C, but in the UK, although the majority of trips in cities are suitable for W&C, the trend is declining (Pucher and Buehler, 2008; DfT, 2009).

The "Visions of the role of walking and cycling in 2030" project examined the development of three alternative scenarios for 2030 in which W&C played a more central role in urban

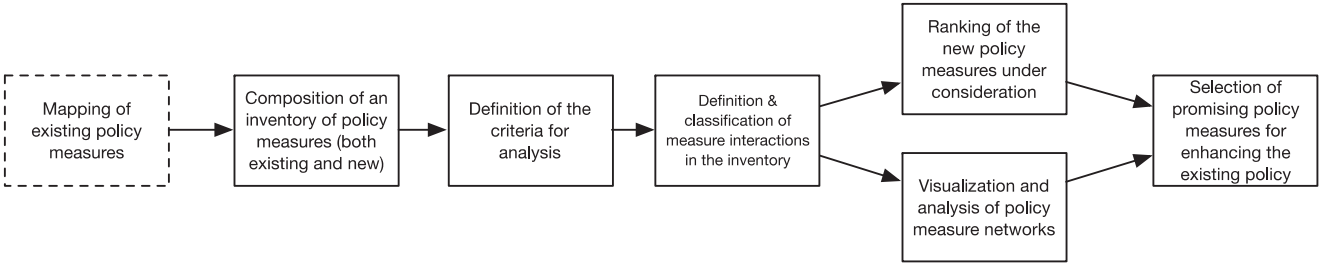

Figure 29.5 The Application of PM-ARM When an Existing Policy Is in Place

transportation (Tight et al., 2011). Almost 150 policy measures were identified that could be packaged in various combinations of policy measures to promote W&C, but policymakers cannot be expected to systematically consider them all (Tight et al., 2011). To support policymakers in carrying out such considerations, the PM-ARM methodology was applied to the question of how to increase W&C (Taeihagh, 2011; Taeihagh et al., 2013). Below we provide a brief summary of the case study.

To apply PM-ARM, the following inputs were required: an inventory of the policy measures, their properties and their relationships with other policy measures. To illustrate the methodology and simplify its application, 38 of the measures identified by Tight et al. (2011) were selected. The measures represent different types of policy measures (infrastructure, regulation, education, etc.) that were likely to increase the rate of W&C. Eight attributes for each policy measure were considered through two criteria sets examining policy measure characteristics with respect to their performance and implementation complexity, and qualitatively assessed using a low, low/medium, medium, medium/high and high scale that was later translated into scores ranging from 1 (low) to 5 (high) (Taeihagh et al., 2013).[9,10] For instance, a policy measure such as "Private motor vehicle ownership restrictions" was considered to have a relatively low cost, high effectiveness, low implementation time, long-lasting effect, medium time required for the effect to be felt after implementation, high technical and institutional complexity and a high level of public unacceptability in comparison with other policy measures under consideration. These values correspond to scores of 1, 5, 1, 5, 3, 5, 5 and 5 respectively.

Following the development and characterization of policy measures, identification of the relationships between each pair of policy measures was carried out to determine if no relation exists, or which of the five relationships defined exists. This information was input into a 38-by-38 multi-relational adjacency matrix developed using Excel. This process forces the experts to explicitly carry out a pairwise analysis of the policy measures and consider how they interact with other measures.

For the assessment and ranking of policy measures, the precondition relationships and facilitation and synergy relationships were used. In NMCDA, the precondition relationships aggregate the nodal information of each criterion; for example, the total cost equals the sum of the cost (C) of the policy measure and its preconditions (Taeihagh et al., 2013). Other calculations are done similar to the Traditional MCDA approach, while also accounting for the precondition policy measures as well. To demonstrate the effect of policy measure relationships on the results from the ranking of the measures, both Traditional MCDA and NMCDA were applied, using the weighted summation of the scores acquired by policy measures in each criterion set. Identical weights for

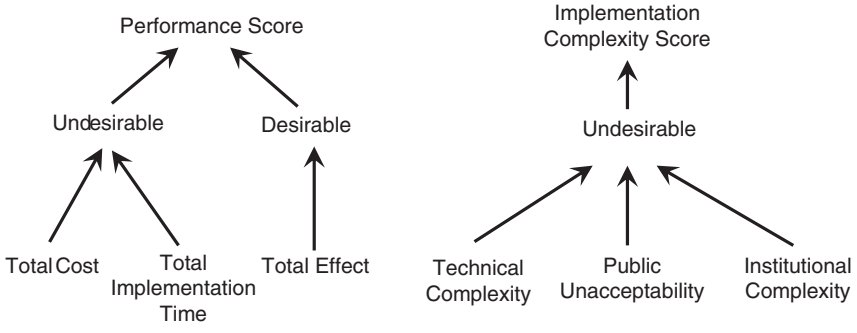

Figure 29.6 Structure of the Performance and Implementation Complexity Scores

Source: Taeihagh, 2011.

each criteria set were applied in both approaches.[11] In Traditional MCDA, policy measures are only ranked according to their intrinsic properties, and the assumption is that policy measures are independent of each other. However, in the NMCDA ranking, in addition to the intrinsic properties of individual policy measures, their interactions with other policy measures are taken into account. The policy measures' scores thus also depend on the types and numbers of interactions.[12] Figure 29.6 illustrates the structure used for calculation of the scores in the two criteria sets. If the overall score of two or more policy measures are equal in the NMCDA ranking, facilitation and synergy relationships are used to differentiate between the measures. For instance, everything else being equal, a policy measure with facilitation and/or synergy relationships with other measures should be preferred to one without such relationships.[13]

Analysis and Visualizations of the Policy Measure Networks

Visualization of the policy measure networks in this chapter was carried out using an algorithm that places the most connected nodes in the center of the visualized network (Fruchterman and Reingold, 1991). The network visualizations are more helpful in showing different aspects of the networks when the networks of relationships are more complex. Figure 29.7 visualizes the Potential Contradiction network. It provides visual information on policy measure combinations that should be avoided or carefully considered during the design and implementation. The central node in the Potential Contradiction network is the "On-road cycle paths" (54) node. It has four potential contradictory relationships with other policy measures in the library, which might be a reason to opt for segregated cycle paths. Whether to opt for on-road or off-road cycle paths is generally undecided, and there is a rich body of literature available on the subject (Pucher and Dijkstra, 2000; Forester, 2001). To make a decision, therefore, local circumstances would have to be considered.

Figure 29.3 (presented earlier) is the visualization of the Precondition network. Without conducting pairwise analysis and visualization of the resulting networks, it is hard to imagine that

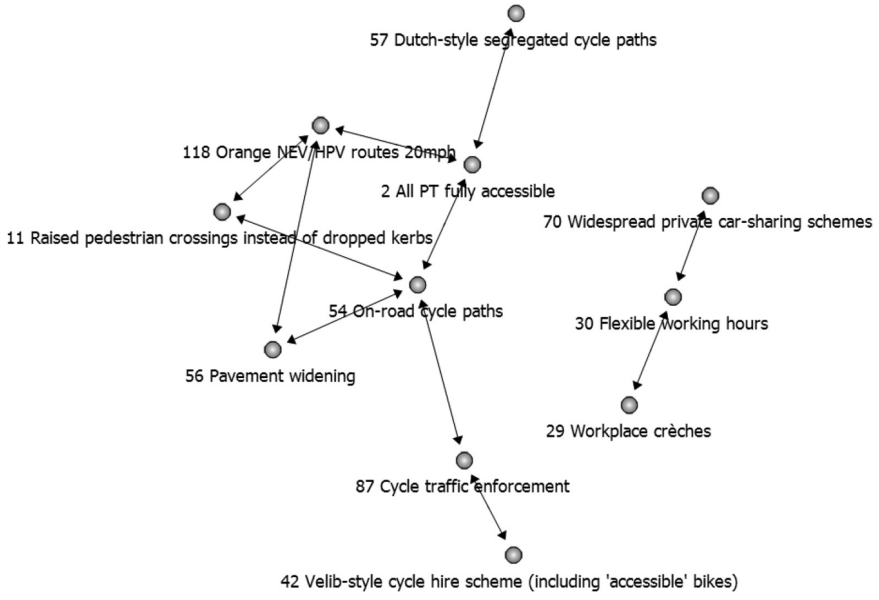

Figure 29.7 Visualization of the Potential Contradiction Network

Source: Taeihagh et al., 2013.

policymakers would be able to deduce similar information about the complex precondition relationships between the policy measures and their implications. Without the use of visualizations, the centrality of a measure—such as "Pavement widening" (56), which acts as an enabler—can be overlooked when considering a large number of policy measures in a library. Visualizations can also help in better communicating the need for such a policy measure. One interesting observation is that almost all policy measures forming the Precondition network are related to infrastructure, indicating the perceived significance of such policy measures.

By analyzing the facilitation and synergy networks, the focus shifts from the implementation aspects to the effectiveness of the policy measures to promote W&C. For instance, Figure 29.8 shows the visualization of the network of synergy relationships, where nodes are scaled based on the number of links connected to them (degree). "Private motor vehicle ownership restrictions" (103) is clearly noticeable as a policy measure that has synergy with a large number of other policy measures (12 synergy relationships), implying that it is a very important policy measure to consider in a package that aims at increasing W&C. Of course, policy measure 103 does not directly address W&C, thus highlighting the significance of considering a combination of policy measures, including some with indirect effects on the policy goals. Such a policy measure might not appear important in terms of the formulation of W&C policy without the use of visualization.

It must be noted that these visualizations do not provide any information about the internal characteristics of the policy measures. For instance, "Private motor vehicle ownership restrictions"

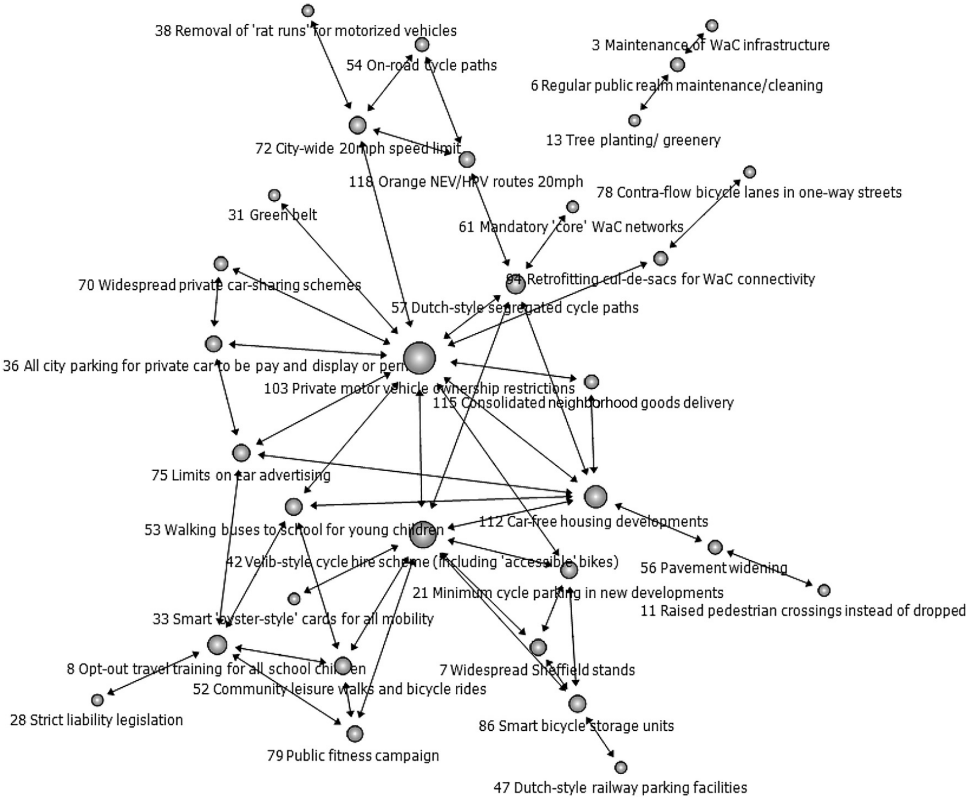

Figure 29.8 Visualization of the Synergy Network (nodes scaled based on their degree)

Source: Taeihagh et al., 2013.

(103) is likely to be very difficult to implement (publicly and therefore politically), something not apparent from the visualizations. It is possible to use color, size variations or different shapes for policy measures to represent some of the properties; however, it would be very challenging to represent all of the properties adequately in the same figure. This increase in the complexity of the networks also has its drawbacks and can cause confusion in cases where internal and relation information are both presented in the same figure. Obtaining information about the internal properties of policy measures through data gathered for the assessment and ranking of measures is therefore easier.

As demonstrated in this subsection, visualizations of the policy measure networks offer vital additional information that can be used while ranking policy measures and selecting which one to implement. The crucial step of bringing together the knowledge gained through the analysis of the different networks and relating it to the performance and implementation criteria, as well as the results yielded by the ranking of policy measures, is left to the judgment of the experts.

Results From Ranking Policy Measures

Using the methodology described in this chapter, two rankings were generated (Table 29.2): a *performance-based* ranking and an *implementation-based* ranking. The final results from these two rankings were not aggregated to avoid diluting the information. It is advisable to first consider

Table 29.2 Ranking of Policy Measures That Aim to Promote W&C Using "Performance" and "Implementation" Criteria Sets by Traditional MCDA and NMCDA

MEASURE TITLE	*Performance*		*Implementation*	
	Traditional	*Network*	*Traditional*	*Network*
All public transport fully accessible (2)	28	20	1	1
Maintenance of W&C infrastructure (3)	24	15	1	1
Regular public realm maintenance/cleaning (6)	30	37	1	**23**
Widespread Sheffield stands (7)	23	30	1	**21**
Opt-out travel training for all school children (8)	37	31	19	10
Fine-grained provision of quality public space (10)	26	35	29	33
Raised pedestrian crossings instead of dropped curbs (11)	31	26	19	10
Tree planting/greenery (13)	31	38	10	**33**
Minimum cycle parking in new developments (21)	2	**14**	9	**23**
Freight windows (26)	9	**33**	34	30
Strict liability legislation (28)	8	5	34	25
Workplace crèches (29)	31	26	30	**19**
Flexible working hours (30)	31	26	34	25
Green belt (31)	7	3	37	**27**
Smart 'oyster-style' cards for all mobility (33)	31	26	25	**15**
Mandatory ring-fencing of W&C funds (34)	5	2	10	6
All city parking for private car to be pay and display or permit (36)	15	6	10	6
Removal of 'rat runs' for motorized vehicles (38)	9	4	10	6
Velib-style cycle hire scheme (including 'accessible' bikes) (42)	17	18	8	**28**
Dutch-style railway parking facilities (47)	25	21	19	10

(*Continued*)

Table 29.2 (Continued)

MEASURE TITLE	*Performance*		*Implementation*	
	Traditional	*Network*	*Traditional*	*Network*
Community leisure walks and bicycle rides (52)	19	**8**	1	1
Walking buses to school for young children (53)	11	**25**	10	18
On-road cycle paths (54)	12	7	10	6
Pavement widening (56)	16	12	28	**17**
Dutch-style segregated cycle paths (57)	17	16	33	30
Mandatory 'core' W&C networks (61)	20	19	25	**37**
Widespread private car-sharing schemes (70)	38	32	1	1
City-wide 20mph speed limit (72)	4	1	19	10
Limits on car advertising (75)	21	**9**	25	**15**
Contra-flow bicycle lanes in one-way streets (78)	1	**11**	10	**22**
Public fitness campaign (79)	36	**24**	1	1
Smart bicycle storage units (86)	22	13	19	10
Cycle traffic enforcement (87)	13	**23**	10	**29**
Retrofitting cul-de-sacs for W&C connectivity (94)	14	10	31	**20**
Private motor vehicle ownership restrictions (103)	2	**17**	37	36
Car-free housing developments (112)	5	**22**	10	**33**
Consolidated neighborhood goods delivery (115)	28	33	19	**30**
Orange NEV/HPV routes 20mph (118)	26	**36**	31	37

Note: When the difference in ranking between the Traditional MCDA and the NMCDA is more than 10 places, the NMCDA rank is emphasized (bold numbers).

Source: Taeihagh et al., 2013.

the performance of various measures before focusing on the implementation challenges, because such challenges can often be addressed using ancillary measures. For each of the performance- and implementation-based ranking sets, the results from Traditional MCDA and NMCDA approaches, where the precondition relationships were taken into account, are presented in Table 29.2.

In the Traditional MCDA performance rankings, policy measures 78, 21 and 103 are the top policy measures that differ from the NMCDA performance rankings, with the three most effective policy measures in the library being numbers 72, 34 and 31. The explanation for this divergence is that the Traditional MCDA ranking does not take into account the precondition relationships. Using the visualization of Figure 29.1, it is evident that the top three policy measures in the Traditional MCDA rankings all have precondition relationships. These precondition relationships have been taken into consideration in NMCDA, which has resulted in lower rankings of 11th, 14th and 17th respectively.

In the implementation complexity rankings, seven policy measures (measures 2, 3, 6, 7, 52, 70 and 79) were jointly ranked first in the Traditional MCDA results. Five of these seven policy measures remain top-ranked policy measures under the NMCDA ranking, as they do not have any preconditions attached. When considering their precondition measures, the policy measures "Regular public realm maintenance/cleaning" (6) and "Widespread Sheffield stands" (7—provision of metal bars placed in the road/pavement as bicycle parking) drop to the 23rd and 21st positions. The policy measures that have relatively few implementation barriers, not surprisingly, have a relatively poor

performance ranking, except "Community leisure walk and bicycle rides" (52), which is ranked 8th in the performance ranking using the NMCDA method (Taeihagh et al., 2013).

A policy measure such as 72 ("City-wide 20mph speed limit") is highly effective and ranked first in terms of performance in NMCDA rankings. It also has no particular implementation barriers (ranked 10th, which means medium/high public unacceptability but low institutional and technical complexity) and appears to be an attractive policy measure to include in a package for promotion of W&C. In contrast, a policy measure such as "Green belt" (31), which ranks highly in terms of performance (3rd), appears to be very problematic in implementation, ranking 27th in the NMCDA implementation ranking. This is due to the high institutional complexity of implementing such a measure, which makes it unappealing.

Future Work

The PM-ARM methodology presented in this chapter has several limitations that future research will address by:

- Collaborating with psychologists to examine various group decision-making approaches for the classification of policy measures. Group decision-making literature focuses on the selection of alternatives, rather than on how groups analyze relationships between different alternatives and learn more about them (Taeihagh, 2017). In a complex setting, discussion among group members is required. An approach such as Delphi can be used to examine the relationships between policy measures and examine their key properties, but discussions that aim to increase the understanding among decision-makers in this process are important on their own. Research should also examine how to avoid reaching an agreement based simply on known solutions, the appropriateness of using support systems for managing information about policy measures (given the large number of them) or the use of facilitators.
- Exploring how to develop a structured approach for generating the initial inventory of policy measures, how to best reduce the size of the initial inventory in cases where a large inventory is generated or how to use novel approaches such as crowdsourcing or application of artificial intelligence techniques. The examination of the potential new roles for expert and non-expert crowds in the policy cycle and particularly in policy design has already been suggested (Prpić et al., 2015). Similarly, text-mining approaches can be used for the discovery and mining of noteworthy knowledge from unstructured texts (Kao and Poteet, 2007). Such approaches have already been applied in health and transportation policy (Bicquelet and Weale, 2011; Krishen et al., 2014). Both crowdsourcing and text-mining approaches potentially can be used for the identification and expansion of the library of measures, the characterization of measure properties by information collection and the classification of measure interactions (Taeihagh, 2017). Crowdsourcing can additionally help in increasing the number of expert and non-expert participants and potentially can increase the speed with which such participations happen (Prpić et al., 2015; Aitamurto, 2012).
- PM-ARM methodology does not at present explicitly consider the extent to which a policy is being implemented (e.g. its geographical scope), although it is evident that such factors will affect the effectiveness and efficiency of a measure. Currently, it is expected that the experts implicitly understand and consider such factors when characterizing measures within the inventory of policy measures and, if necessary, make adjustments to them.

Conclusions

The complexity of many policy problems necessitates the development of novel methodologies to assist policymakers in decision-making. This complexity arises from the large number of policy options available (policy measures in this case), their various interactions and the need for systematic consideration of them in order to make more informed decisions.

PM-ARM facilitates systematic consideration of a large number of policy measures for addressing specific policy problems and better consideration of the effectiveness and efficiency of different policy measures individually or when considered together in policy patching or packaging. PM-ARM utilizes network theory and MCDA and goes beyond the traditional application of MCDA approaches, which in turn helps enhance policy effectiveness (Taeihagh et al., 2013). This methodology recognizes and subsequently systematically utilizes different types of relationships between policy measures for their visualization, analysis and ranking and helps in the consideration of a much larger number of policy measures from the decision space than would otherwise be possible. This in turn can increase the level of knowledge utilization in the design process (Landry et al., 2001).

The visualization of policy measure networks reveals vital information that otherwise might be overlooked due to the difficulty of remembering and grasping different relationships between policy measures. The use of PM-ARM and policy measure networks enables manual design of policies (Justen et al., 2014). More importantly, it facilitates the design through policy patching and packaging by use of decision support systems; PM-ARM principles have already been embedded in the policy package ranking and selection algorithms in such a system (Taeihagh et al., 2014). It must be emphasized that the use of computer systems is not meant to substitute for policymakers, but to assist them in the analysis and selection of a large amount of measures in the formulation of policies. Moreover, some of the 'hidden' undesirable properties of the measures can be exposed using the methodology. PM-ARM is generic in nature and can be applied at different levels of government and in different policy domains. It is essential to use computational approaches to consider a larger fraction of the decision space and to better use policymakers' knowledge and experience.

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Notes

1. The term 'bounded rationality' was coined by Simon (1957), indicating the boundaries to the rationality of individuals due to their restricted access to information, their cognitive limitations and the finite amount of time available for decision-making.
2. Milgrom and Roberts (1990, p. 60) defined transaction costs as 'the costs of deciding, planning, arranging and negotiating the action to be taken and the terms of exchange when two or more parties do business; the costs of changing plans, renegotiating terms, and resolving disputes as changing circumstances require; and the costs of ensuring that parties perform as agreed.'
3. For instance, OPTIC (2010) uses two types of precondition and synergy/facilitation (as a single interchangeable type); Justen et al. 2014 use precondition, synergy/facilitation (interchangeable) and contradiction/potential contradiction (interchangeable) types; Matt et al. (2013) use precondition, synergy, facilitation and potential contradiction. Taeihagh et al. (2014) and Champalle et al. (2015) use all five

types of policy measure relations defined so as to capture the interactions between policy measures in different capacities, such as building frameworks and methodologies, or for analyses or visualizations.

4. 0 in the element *(a,b)* indicates there is no relationship between a and b in element *(a,b)*, and in cases where the relationship between the nodes a and b are undirected, elements of *(a,b)* and *(b,a)* will both have the same value.
5. The direction of the arrows used in the figure such as in Figure 29.2b and in subsequent network visualizations is based on the agreement of the individuals involved in the project and/or the software systems used.
6. Multiplex networks are defined as sets of nodes that connect to other nodes in the network with more than one type of relationship (Wasserman and Faust, 1994).
7. The centrality of a node is a measure of its importance or influence in a network (Freeman, 1979).
8. For a detailed discussion about the use of networks and MCDA approaches and their combined use, as well as differences with the network-centric approach used in this chapter, see Taeihagh et al. (2013).
9. Performance attributes included consideration of the cost (C) of implementing the policy measure; the effectiveness (E) of the measure in affecting the policy target; the timescale of implementation (TI); the delay (D), or the length of time from the implementation of the policy measure to the time its effects are felt; and the timescale of effect (TE), or the length of time during which the measure's effect is felt after implementation.
10. Implementation complexity is considered the cost of overcoming issues such as technical complexity (TC), or the technical challenges in implementing policy measures; public unacceptability (PU), or the likelihood of public opposition to the implementation of the measure; and institutional complexity (IC), which relates to the political and institutional transaction costs of implementing policy measures. The implementation complexity criteria set was first used by de Bruin et al. (2009) to rank different policy measures that addressed climate change policy.
11. The weights used for each criterion set were as follows: performance ranking: total implementation time 20%; total effect 40%; cost 40%. Complexity ranking: technical complexity 20%; public unacceptability 40%; institutional complexity 40% (Taeihagh et al., 2013).
12. Using the Network Centric MCDA approach, these calculations were performed to derive the score of a policy measure: a) total implementation time is the sum of the TI and D for a policy measure and its preconditions; b) total effect is TE of a policy measure multiplied by E (this is done without taking into account the effect of the preconditions deciding the extent to which a measure is affected by the implementation of its preconditions, which is hard to quantify); and c) for implementation complexity criteria, the value associated with the measure is the sum of values for the measure and all its preconditions.
13. It is difficult to quantify facilitation and synergy relationships in terms of their positive effects, and it is not advisable to compare policy measure relationships in terms of the number of relationships they have and make conclusions about which one is better.

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