Patching vs Packaging in Policy Formulation:
Complementary Effects, Goodness of Fit, Degrees of Freedom and Feasibility
in Policy Portfolio Design

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Abstract:

Thinking about policy mixes is at the forefront of current research work in the policy sciences and raises many significant questions with respect to policy tools and instruments, processes of policy formulation, and the evolution of tool choices over time. Not least among these is the assessing the potential for multiple policy tools to achieve policy goals in an efficient and effective way. Previous conceptual work on policy mixes has highlighted evaluative criteria such as "consistency" (the ability of multiple policy tools to reinforce rather than undermine each other in the pursuit of individual policy goals), "coherence" (or the ability of multiple policy goals to co-exist with each other in a logical fashion), and 'congruence" (or the ability of multiple goals and instruments to work together in a uni-directional or mutually supportive fashion) as important design principles and measures of optimality in policy mixes. And previous empirical work on the evolution of existing policy mixes has highlighted how these three criteria are often lacking in mixes which have evolved over time as well as those which have otherwise been consciously designed. This paper revisits this work in order to more clearly assess the reasons why many existing policy mixes are sub-optimal and the consequences this has for thinking about, and practicing, policy design.

Introduction: Policy Portfolios and Policy Design

Policy design is an activity which unfolds in the policy process as policy actors deliberate and interact in the construction of both the means or mechanisms through which policy goals are given effect and the goals themselves. 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” [1-3]. But public policies are comprised of complex arrangements of policy goals and policy means which can be packaged in a more, or less, systematic fashion. Why this is the case and how thinking about policy design can be advanced and made more systematic is the subject of this article.

Like ‘planning’, policy design theory has its roots in the ‘rational’ tradition of policy studies, one aimed at improving policy outcomes through the application of
policy-relevant knowledge to the crafting of alternative possible courses of action intended to address specific policy problems [4-12]. But it extends beyond this to the consideration of the practices, frames of understanding, and lesson-drawing abilities of policy formulators or “designers” in adapting design principles to the particular contexts that call for policy responses [2][13].

Assessing policy designs and the extent to which policy-making can be considered to embody an intentional design logic begins with the recognition that in many circumstances, policy decisions will be more highly contingent and ‘irrational’ than in others [14]. That is, there is no doubt that in many cases policy-making has been driven by situational logics and opportunism rather than careful deliberation and assessment [15-19].

This high level of contingency has led some critics and observers to suggest that policies cannot be ‘designed’ at all, at least in the sense that a house or a piece of furniture can be the product of conscious and systematic design. But those who have written about policy design disagree with this assessment. Recognizing the dialectic existing between principle and context they distinguish the formulation process from the actual design of a policy itself. In much the same way as the development of an architectural plan can be distinguished from its engineering or construction manifestations, optimal policy designs in this sense can be thought of as ‘ideal types’, that is, as configurations of elements which 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. Whether or not this potential is actually realized in
practice is another matter and the subject of a separate investigation and field of inquiry [20].

This paper explores this meta-orientation to the study of policy designs. Bracketing the actual process of policy formulation which may or may not provide auspicious conditions for a ‘design orientation,’ it revisits several ‘first principles’ for policy portfolio design found in the literature, then addresses the nature of the evaluative criteria used to distinguish ‘good’ from ‘poor’ design. Returning to the ground of actual policy-making, it then moves on to consider issues such as the ‘degrees of freedom’ or room to manouevre which designers have in developing and implementing their designs and the idea of ‘maximizing complementarity’ and ‘goodness of fit’ with existing governance arrangements. Finally it develops the notion that two distinct and very different types of design processes have been incorrectly juxtaposed in the literature – “policy patching” and “policy packaging” – and suggests the former is often more likely to be found in practice than the latter.

**Existing Policy Design Principles and Practices Re-Considered**

Policy makers typically consider several 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 to resolve some identified problem or attain some goal.

Policy design is thus both a ‘verb’ – in the sense of characterizing one manner in which a policy process can unfold in creating a policy configuration sensitive to the constraints of time and place – and also a ‘noun’ – in the sense of being an actual product or artifact that can be compared to others [21]. Policy design as a verb involves some
process of coordinating disparate actors towards agreement on the content of designs-as-a-noun in working in a given spatio-temporal context. This is an interesting and complex process but, as noted above, can be separated, at least in the abstract, from the ‘design’ itself. Again, to use an architectural metaphor, in much the same as craftsmanship and skill in construction are significant factors involved in realizing a design but can be considered separately from the design itself which can be assessed not against its realization but against aesthetic and other criteria for assessing ‘good’ design [21-24].

But what is it that is ‘designed’ in policy design? In all but the very simplest contexts, policy alternatives are options for government action comprised of different sets of policy means – that is policy tools and their calibrations – bundled together into packages of measures which are expected by their designers to be capable of attaining specific kinds of policy outcomes [25-28]. “Policy designs” in this sense refer to how which 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.

Analyzing policy design in the context of complex policy mixes raises a series of questions about how the superiority of the design of one portfolio over another can be assessed ex-ante. Not all designs are equal nor is one design just as good as any other, and a subject of much interest to students of policy designs, therefore, is the nature of the evaluative criteria which can be used to identify “better” or more ‘intelligent’ designs and distinguish them from ‘poor’ designs, and from non-design. Various ‘design principles’ articulated at various points in the history of studies of policy tool choice and instrument selection studies have attempted to address this issue and the merits and demerits of some of these efforts are set out below.
As shall be discussed, rules or maxims have been proposed both about how many tools there should be in a bundle and about how these tools should be combined [29] The former is a subject which received some attention in the early 1950s and resulted in several ‘principles’ of policy design which emphasized aesthetics of simplicity and elegance, while the latter issue received some attention in the 1970s and 1980s as scholars emphasized a need to eschew a knee-jerk preference for highly coercive tools and instead begin slowly with the least ‘interventionist’ tools possible before ‘moving up’ to more coercive designs.

While these areas were the subjects of most early thinking about policy mixes, more recent design thinking has addressed a second series of questions related to the larger issue of how and to what extent tools must not only be related logically or evidentially to each other but must also match their policy environments. That is, designs have come to be seen as involving the need to go beyond just a logical or principles match policy elements to extend to a match between the social construction and ecological adaptation of policy [30] or between ‘principle’ and ‘context’ [31] in much the same way as architectural designs can either ignore or reflect and incorporate their geo-physical settings.

This more recent thinking about the nature of policy mixes and the relationships between their components and environments have raised several new issues for design thinking. These add an additional layer of complexity to earlier analyses which focused almost exclusively on relationships existing between policy elements. Older concepts such as consistency’, ‘coherence’, and ‘congruence’ which purported to set out the goals towards which complex designs should aspire have now been joined by others such as
‘goodness of fit’ between these elements and their contexts. 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 policy-making practice. These include “maximizing complementary effects” or the need to better match policy designs and policy designing or formulation activities, and the need to match policy designs with governance contexts.

And efforts have also been made to better relate ‘meta-designs’ to their manifestations in practice by examining questions about how much room to manoeuvre or how many ‘degrees of freedom’ designers have in any design circumstance. This involves attempts to assess how closely designers must adhere to existing and pre-existing policy elements or how far they can go in proposing alternative designs to the status quo. Such considerations often promote ‘policy experiments’ as a means to determine policy fit in practice [32-33] and have led to suggestions that designs should retain adequate ‘flexibility’ or adaptive elements to allow them to be adjusted once in place [33-34].

The merits and demerits of each of these existing and new design principles and maxims are discussed in more detail below.

**Older Design Maxims and Their Problems**

The older literature on policy design developed several maxims or heuristics which it expected could be used to head off common errors or sources of failure in policy-making. These included the promotion of parsimonious tool use in policy mixes, the injunction to
begin with less coercive tools and only move towards coercion of policy targets as necessary, and the above-mentioned criteria of coherence, consistency and congruence for assessing the level of optimality of the arrangement of elements in a policy mix. Although a good start, as noted below, these principles were developed on the basis of faulty deductive premises and limited empirical evidence as to their accuracy and utility. As these faults were recognized, new efforts to think about complex policy designs has led to a new generation of design thinking in this area and the articulation of a new set of principles, and practices, expected to result in superior designs, that is, ones more likely to reach their targets and achieve their goals [36-38].

**Parsimonious Tool Use**

The first and oldest maxim of policy mix design is to observe parsimony in tool selection. An oft-cited rule in this area, for example, first put forward by Jan Tinbergen in 1952 [29], is that the “optimal ratio of the number of tools to targets” should be 1:1 [39]. That is, that the number of policy tools in any mix should roughly match the number of goals or objectives set for a 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 the employment of redundant tools in the area of economic policy. 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 well aware that combinations of tools are typically used to address a policy goal, not a single instrument. As Tinbergen [29] 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).

Such admonitions, unfortunately, have generally been neglected in studies ostensibly based on Tinbergen’s work, with many erstwhile designers attempting to force complex situations into the more simple mould required for Tinbergen’s rule to apply [39]. 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 which specifically take into account the spatio-temporal complexities missing in previous design maxims [25-26]. Thus 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 the injunction to be parsimonious in the number of instruments chosen at a specific point in time in order to attain a goal, but also to be parsimonious dynamically or sequentially over time. 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 [30-44]. They argued that choices of tools should only ‘move up the spectrum’ of coercion as needed so that the ‘proper’ sequencing of tool types in a policy mix would be from minimum levels of coercion towards maximum ones [45].
This rationale for instrument choices and policy designs did take policy context into account. That is, it was based on an appreciation of the ideological preferences of liberal-democratic societies for limited state activity and on the difficulties posed for governments in the exercise of their preferences by the relative "strength" or ability of societal actors to resist government efforts to shape their behaviour. 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 - it was argued that in a liberal democratic society, governments, often for both ideological and pragmatic reasons, would prefer to, and should, use the least coercive instruments available and would only employ coercive ones as far as was necessary in order to overcome societal resistance to attaining their goals. As Doern and Wilson [45] 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 (p. 339).

This formulation has many advantages as a design principle. It is not uni-dimensional, 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 of tools have been made [46]. Preferring "self-regulation", for example, governments
might first attempt to influence overall target group performance through exhortation and education efforts and then add instruments to this mix only as required in order to compel recalcitrant societal actors to abide by their wishes, eventually culminating, if necessary, in regulation or the public provision of goods and services.

This maxim was based on both an extensive observation of the actual design practices followed by many governments and a set of principles informing ‘proper’ or appropriate overall tool preferences. However, as Woodside [47] argued:

Experience suggest 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).

Coherence, Consistency and Congruence as Measures of Design Integrity and Superiority

These early efforts from the 1970s and 1980s to articulate policy design principles were overtaken in the 1990s by work which focused on the need to articulate a set of general principles which would more clearly inform the selection of the various parts of a mix or portfolio. Here it was noted that policies are composed of several elements: distinguishing between abstract or theoretical/conceptual goals, specific programme content or objectives, and operational settings or calibrations [48-40] - as set out in Figure 2 below. The central criteria which the design literature developed was ‘integration’ or the idea that goals and means should not work at cross-purposes but mutually reinforce each other [51-53].

That is, it was argued that some correspondence across elements was required if policy goals were to be integrated successfully with policy means [51][49] and that a
relatively small number of criteria could be developed to help assess the extent to which existing or future mix elements were integrated [54].

Previous work on policy design has identified one such evaluative criteria in the notion of "consistency" or the ability of multiple policy tools to reinforce rather than undermine each other in the pursuit of policy goals. A second such criteria related to goals rather than means. Here the idea of "coherence" or the ability of multiple policy goals to co-exist with each other and with instrument norms in a logical fashion was developed. Finally the idea of 'congruence" or the ability of goals and instruments to work together in a uni-directional or mutually supportive fashion rounded out these three integrative dimensions of any policy design [55].

FIGURE 1 - Components of a Policy Mix

<table>
<thead>
<tr>
<th>Policy Focus</th>
<th>Policy Content</th>
<th>Specific On-the-Ground Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Policy Ends or Aims</td>
<td><strong>GOALS</strong> What General Types of Ideas Govern Policy Development? (e.g. environmental protection, economic development)</td>
<td><strong>OBJECTIVES</strong> What Does Policy Formally Aim to Address? (e.g. saving wilderness or species habitat, increasing harvesting levels to create processing jobs)</td>
</tr>
<tr>
<td></td>
<td><strong>SETTINGS</strong> 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)</td>
<td></td>
</tr>
<tr>
<td>Policy Means or Tools</td>
<td><strong>INSTRUMENT LOGIC</strong> What General Norms Guide Implementation Preferences? (e.g. preferences for the use of coercive instruments, or moral suasion)</td>
<td><strong>MECHANISMS</strong> What Specific Types of Instruments are Utilized? (e.g. the use of different tools such as tax incentives, or public enterprises)</td>
</tr>
<tr>
<td></td>
<td><strong>CALIBRATIONS</strong> 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)</td>
<td></td>
</tr>
</tbody>
</table>

Source: Modified from [50]
The development of such criteria was a significant advance over both the earlier works mentioned above and moved policy design thinking well beyond other frameworks developed around the same time which purported only to develop series of ‘hints’ for policy-makers to follow in promoting better designs in specific policy areas such as innovation and technology policy [56-57].

**Modern Principles of Policy Design: Complementary Effects, Goodness of Fit and Degrees of Freedom**

However, while clear enough in theory, these works raised to the forefront the need to re-integrate thinking about policy ‘design-as-noun’ with ‘design-as-verb’ [58-59]. This was because empirical work on the evolution of policies highlighted how these three criteria were often only weakly represented in existing mixes, especially those which have evolved over a long period of time [60-61]. That is, empirical research into policy designs in practice revealed considerable gaps between coherency, consistency and congruence of actual policy mixes and highlighted the need to consider the *temporal* evolution of tool portfolios, much as Doern and his colleagues had done several decades earlier [62]. Recent design thinking, however, 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 [63] as well as ensuring that the mix is compatible with existing governance arrangements [64]

*Maximizing Complementary Effects*

A major issue for contemporary design studies is the fact that not all of the tools involved and invoked in a mix are inherently complementary [65-67] in the sense that
they evoke contradictory responses from policy targets [68-73]. Some combinations, of course, may be more virtuous in providing a reinforcing or supplementing arrangement [64]. And some other arrangements may also be unnecessarily duplicative while in others some redundancy may be advantageous [75-76].

That is, as Grabosky [66] 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 [64] argued, other tools complement or supplement each other – for example, using command and control regulation to prevent certain behaviour 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 packages which take these precepts into account in their formulation or packaging [64-65][77-78].

Goodness of Fit: The Need for Designs to Match Governance Mode and Policy Regime Capacities

Contemporary design thinking also highlights the need for designs to respond to particular, context-dependent features of the policy sector involved [26]. In this sense, “goodness of fit” between tool and context is a concern and can be seen to occur at several different levels.

That is, at one level design choices emerge from and must generally be congruent with the governance modes or styles practiced in particular jurisdictions and sectors. In other words, different orientations towards state activity require different capabilities on
the part of state and societal actors and since 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 [79].

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’ [80-81]. Work on ‘policy styles’ [82-84] identified common patterns and motifs in the construction of typical policy designs in different jurisdictions reflecting such concerns [85][26][79].

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 (see Figure 2 below) 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 political system but do so indirectly through the alteration of the relationships existing between different kinds of social actors [86-87]. This is unlike corporate and market governance which involves more overt state direction. This relationship between governance style and instruments is a significant one for studies of policy design. Since the exact processes by which policy decisions are taken vary greatly by jurisdiction and sector and reflect great differences between and 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 [88-89] – the existence of an overarching variable which allows some matching of design and context is a critical one.

FIGURE 2 – Modes of Governance

<table>
<thead>
<tr>
<th>Mode of Governance</th>
<th>Central Focus of Governance Activity</th>
<th>Form of State Control of Governance Relationships</th>
<th>Overall Governance Aim</th>
<th>Prime Service Delivery Mechanism</th>
<th>Key Procedural Tool for Policy Implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Legal Governance</td>
<td>Legality - Promotion of law and order in social relationships</td>
<td>Legislation, Law and Rules</td>
<td>Legitimacy - Voluntary Compliance</td>
<td>Rights - Property, Civil, Human</td>
<td>Courts and Litigation</td>
</tr>
<tr>
<td>Corporate Governance</td>
<td>Management - of Major Organized Social Actors</td>
<td>Plans</td>
<td>Controlled and Balanced Rates of Socio-economic Development</td>
<td>Targets - Operational Objectives</td>
<td>Specialized and Privileged Advisory Committees</td>
</tr>
<tr>
<td>Market Governance</td>
<td>Competition - Promotion of Small and Medium sized Enterprises</td>
<td>Contracts and Regulations</td>
<td>Resource/Cost Efficiency and Control</td>
<td>Prices - Controlling for Externalities, Supply and Demand</td>
<td>Regulatory Boards, Tribunals and Commissions</td>
</tr>
<tr>
<td>Network Governance</td>
<td>Relationships-Promotion of Inter-actor organizational Activity</td>
<td>Collaboration</td>
<td>Co-Optation of Dissent and Self-Organization of Social Actors</td>
<td>Networks of Governmental, and Non-Governmental Organizations</td>
<td>Subsidies and Expenditures on Network Brokerage Activities</td>
</tr>
</tbody>
</table>

Source: Modified from [90-91].

 Degrees of Freedom

A third key concept which has emerged in contemporary design thinking in this context is that of ‘degrees of freedom’. That is, if any combination of tools was possible in any circumstances then decision-makers could be thought of as having unlimited ‘degrees of freedom’ in their design choices. Empirical studies and thinking about goodness of fit and complementary effects, however, have noted this kind of freedom in combining design elements can be expected to be quite rare. For example, this might
occur in situations of what Thelen [92] 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. As Thelen, noted, however, most existing mixes or portfolios have rather 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. As Christensen et al. [93] have argued, a key design issue here is thus 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 designs-as-nouns, there are also constraints imposed on designs-as-verbs by existing trajectories of policy development. As Christensen et al. [93] 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’ (p. 158).

How much room to manœuvre or degrees of freedom designers have to be creative Considine [94] or, to put it another way, to what degree they are ‘context bound” in time and space [26] is a subject of some interest in contemporary design studies. From the historical neo-institutionalist literature cited above it is well understood that complex policy mixes, like institutions, can emerge through several distinct processes or historical trajectories [92] [95-97]. 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 [98]. *Conversion* involves holding most of the elements of the policy mix constant while redeploying the mix to serve new goals [99]. 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, however, policy designers, are typically faced with a situation in which an already existing policy mix is in place and cannot be easily discarded [100-101].

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 [102]. Designers’ freedom is thus hemmed in on two sides. First, existing mixes often have accumulated varying degrees of political support from those who benefit from them, ruling out replacement [103-105]. 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 favoured instruments may actually be strengthened by the addition of new goals that bring in new political support for the mix. Drift is the favourite 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 [106].

**Policy Packaging and Policy Patching as Design Methods**

This last point raises another issue of interest to current design studies, that of the basic mode or style of policy-making 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 [107].

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. 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 [108]. 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 [109]. 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 [59] [110].

Although there is a 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 palimpsest-like mixture of inconsistent and incoherent policy elements [111]. And sweeping it all away and starting again with custom made policy designs capable of meeting contemporary policy challenges seems the obvious solution and 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 [51-53].

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 programmes in order to correct flaws or allow them to adapt to changing circumstances – is a critical insight with which contemporary design studies is only just beginning to grapple. But distinguishing between policy packaging and policy patching as two methods of attaining the same goal – the heightened coherence, consistency and congruence of policy elements coupled with a better fit between tools
and their context – is a needed step towards moving beyond older principles or parsimony and the use of less coercive tools and towards enhancing the ability of policy formulATORS to deal with the very common class of policy problems and situations which demand complex governmental responses [119].

**Conclusion: Policy Design and the Feasibility of Policy Alternatives**

The purpose and expectations of policy design efforts have always been clear [112-113]. It is an activity conducted by a number of policy actors in the hope of improving policy-making and policy outcomes through the accurate anticipation of the consequences of government actions and the articulation of specific courses of action to be followed; in other words by improving assessments of both the theoretical effectiveness as well as the *feasibility* of policy alternatives [114-118].

Each “policy” however is a complex ‘regime’ or arrangement of ends and means-related goals, objectives, instruments and calibrations which exist in a governance setting and which 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 is the likely result of their (re)design.

Clarifying the principles enunciated and articulated by early policy design proponents and distinguishing between intentional and unintentional process of policy change help move the study of policy designs and design processes forward. However these considerations must take into account the fact that ‘policies’ are typically ‘bundles’ or ‘portfolios’ of policy tools arranged in policy mixes and that such bundles are typically the outcome of distinctive processes of policy change, in which elements are added and subtracted from the mix over time.
While policy designs can and should be considered in the abstract, understanding how these change processes create and modify mixes is critical to evaluating the chance of success for any particular policy mix to attain its goals once put into practice. Adding the notion of policy ‘patching’ to considerations of intelligent design better connects design considerations to practice than many earlier discussion firmly centered in the ‘planning’ orientation. These often relied on ideas about the ease or need for wholesale policy replacement which did not exist in practice. Contemporary design discussions centered on the articulation of design principles such as “goodness of fit” in policy formulation, governance and steering, and the ‘degrees of freedom’ which formulators or designers have in carrying out their work both over space and over time complement and advance earlier notions such as parsimony and gradual ratcheting of coercion, and the need for coherence, consistency and congruence in designs which were a major feature of earlier eras of thinking about design issues.

References and Notes

[4] Policy design as a verb shares a large number of features in common with ‘planning’ but without the strategic or directive nature often associated with the latter. Policy design is much less technocratic in nature than these other efforts at ‘scientific’ government and administration. However, it too is oriented towards avoiding many of the inefficiencies and inadequacies apparent in other, less knowledge-informed ways of formulating policy, such as pure political bargaining, ad hocism, or trial-and-error. In general, though, it is more flexible than planning in developing general sets of alternatives rather than detailed directive ‘plans’


[27] 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.


[44] They first placed only self-regulation, exhortation, subsidies, and regulation on this scale but later added in categories for "taxation" and public enterprise and finally, an entire series of finer "gradations" within each general category.


100] Many sustainability strategies, for example, have suffered from layering. For example, efforts at the integration of various resource management regimes that have failed when powerful interests are able to keep favourable goals, instruments and settings, such as unsustainable fishing or timber cutting quotas that support an industry, and limit the impact of new policy initiatives. 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. Conversion has characterized some major health policy reform efforts, for example 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.


