

# Experimentation and Learning in Policy Implementation: Implications for Public Management

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## ***Future State 2 - Working Paper 11/04***

*Future State 2 is a research project being undertaken on behalf of state services chief executives as part of the Emerging Issues Programme (EIP). The project aims to identify how the 'centre' can support new ways of working that are required for the public sector to respond effectively to emerging complex problems, and how individual agencies could promote new ways of working. There are several strands to this work: 1) international perspectives, 2) emerging trends in governance, 3) joint accountability, 4) experimentation and learning in policy implementation, 5) agency restructuring, 6) skills and capabilities, and 7) the authorising environment.*

### **Abstract**

Policy objectives often can be simply stated. Yet, policy implementation frequently becomes complex, not only when the problem addressed is complex or wicked, such as family violence prevention, but also when the policy is simply stated, such as raising the GST. In complex implementation, effective organisational and individual practices facilitate learning by experimentation. Practices centre on detecting anomalies and then explicitly incorporating reflections on them in ongoing design, implementation, monitoring and evaluation activities. The research drew on policy and experimentation literature to propose a new framework for describing complex implementation practices, a range of cases studies, and discussions with policy managers. Findings highlight the need for a consistent strategic view of end goals, some means for testing changes, and the capacity to identify and assess results in order to redirect effort. Support for these practices involves ensuring appropriate permission to experiment, early and sustained activity conducted outside the responsible agencies, and open access to multiple sources of expertise. Implementing agencies and the policy management system need to take every opportunity to fully incorporate learning into their understanding of the agency's role, capability requirements, and future focus.

### **Introduction and research aims**

This research sought fresh perspectives on implementation activities, particularly in complex situations. Policy implementation describes the set of activities between a government decision to initiate or change a given policy intervention and the observation of outcomes. Practitioners know, however, that the boundaries are often blurred between policy design, implementation and detection of outcomes. Academic research and evidence from New Zealand indicated a need to augment simple and linear models of the policy process with explicit practices based on an iterative experimental-learning process when dealing with complex implementation situations. Initial evidence suggested that activities evolve to suit new information from the implementation field and necessarily involve actors outside the government agencies responsible for the policy. Policy design and implementation are co-produced along with policy outcomes, with evaluative learning marshalling that process. Accordingly, this research set out to investigate the public management implications of implementation practices, guided by two aims:

***(1) To identify organisational and individual practices that promote more effective policy implementation, facilitating learning by experimentation.***

***(2) To identify practices that capture knowledge about complex implementation and maintain it institutionally.***

It further sought to identify lessons that address a broader question:

***(3) What can the centre do to support policy implementation in the constantly changing 'real-world'?***

This research adds to the understanding of how public sector agencies operate effectively in conditions where there are wicked problems and multiple perspectives on their causes and solutions. Attention deliberately shifts from ex ante efforts to logically link policy design and interventions to consequent outcomes to alternative ways of thinking about and 'doing' policy. This shift in focus sets the stage for a series of specific suggestions to be considered at different levels, including Parliament and select committees, cabinet, chief executives and senior departmental leaderships, leadership collectives, and the central control agencies.

## **Evidence base**

The research built on public management literature that identifies organisational and individual practices that promote more effective policy implementation when dealing with complex situations, previous New Zealand public management research findings, and new discussions with policy managers from a range of public agencies.

### ***Literature***

International public management literature dealing with the policy processes involving complexity in implementation and wicked problems provided an initial orientation to the research. The themes from the literature included complexity as it applies to policy processes, experimentation in policy implementation and pragmatism.

Among the implications of complexity is that no one person or organisation has sufficient information or resources to understand and solve complex or wicked problems (Klijn, 1996; Ritter and Webber, 1973), including policy implementation problems. At the heart of many policy processes lies a marriage of appropriate means (people, perspectives, influence, and resources) to understand the reality of a problem and to address it, along with an understanding of social complexity as it affects human societies and organisations. As with any complex system:

change, instability and non-equilibrium are the norm . . . the path of change can be highly sensitive to initial conditions. . . traditional cause-effect assumptions cease to be valid; elements of systems are mutually dependent. . . in effect the behaviour of a complex system emerges as the holistic sum of the dynamic interaction between its component parts over time. (Sanderson, 2009, pp. 705–6)

Appendix 1 provides a summary of the features of complex systems as they may apply to policy processes.

A view of policy as a form of experimentation has been extensively developed in the literature (DeHue, 2001; Dunn, 1998; Pawson, 2006; Sanderson, 2009), reflecting an understanding of policy as fluid, ambiguous and emergent, with implications for implementation. It is suggested that one doesn't simply 'dive in' to learn in a new situation (Stoker and John, 2009). Instead one treats systems of joint activity as experiments through "speculatively defined ideals" used as hypotheses which are tried out in practical life (Haworth, 1960, p. 35). The theme of treating policy as social experiment (Dunn, 1998) is mirrored in practices than seek to diverge from pure randomised experiment trials in order to learn better from the everyday complexities (Oxman et al., 2009). Others offer overviews of practices based on recently crafted ideas of 'design thinking' (Baerenholdt et al., 2010).

Finally, the literatures examined reveal a common orientation to practice strategies that derives—in essence, if not always plainly and directly—from pragmatism. Pragmatic thinking supports revelation of the 'truth' of real-world problems from many actors' perspectives. Sanderson (2009) explicitly draws on pragmatism to define 'intelligent' policy making, based on accommodating complexity, testing policies in practice, evaluating rigorously, and applying what is learned to future policy thinking and decisions. (Appendix 2 provides an overview of pragmatism.)

### ***Case studies***

Four New Zealand cases illustrated the themes of pragmatism and complexity at work in public policy processes and led to the designation of some initial propositions about the characteristics of complex implementation. The four cases provided some common insights into instances of complex implementation, even though their substantive contexts differed.

In the first case (Eppel, 2010), the creation of the Tertiary Education Commission was shown to be based on an apparently simple idea—that creating a new government agency could serve to steer the whole of the tertiary education sector such that the research and education outputs of tertiary education funded by government were more aligned to New Zealand's economic and labour market needs. The implementation of this idea proved complex because much of the information needed to understand the change required was dispersed in individual organisations. Furthermore, as the policy was implemented, these organisations continued to adapt and co-evolve with the policies being implemented. This resulted in the emergence of new and completely unexpected phenomena which had not been present or considered at the time the policy was designed.

The second case examined the Land and Water Forum (Bisley, 2010a, 2010b). The Forum, pursuing a collaborative governance approach that was relatively unknown and untested in New Zealand, created a policy framework for water use in an area where policy progress had previously been stalled. The approach allowed multiple perspectives to be taken into account and competing values and priorities to be balanced. The third case, Schooling Effectiveness in Mangere and Otara (Eppel, Gill, Lips, & Ryan, 2008; Phillips, McNaughton, & MacDonald, 2002; Robinson & Timperley, 2004) examined responses to the problem of improving education outcomes in a large number of south Auckland schools. The problem was addressed with the resources of the schools and their communities, as well as the technical expertise and research data held by the Ministry of Education. A shared vision across all actors was used to lead effective change in which novel approaches were developed in partnership with the schools. Finally, in the fourth case (McLaren & Stone, 2010), the Family Violence Prevention Campaign was considered as an exemplar of a 'community study' approach to learning about a policy situation. In this case, family violence prevention activities were constructed by leveraging community knowledge and resources. A relatively simple idea, 'It's not OK', was used to build a shared understanding of the problem in communities and motivate local action. Evaluating such a complex implementation was also shown to require taking account of the

complexity of the implementation. Detailed information on these case studies is available on <http://ips.ac.nz/events/completedactivities/Emerging%20Issues%20Programme/Future%20State.html>.

### ***Interview and focus group discussions***

Policy practitioners were provided an overview of lessons drawn from the four case studies, and asked to describe their own complex implementation experiences with the aid of diagrams contrasting policy practices that were developed for the purpose (described below). Interviewees came from diverse sectors: education, taxation, international trade, security and border control, community development and justice. Practitioners' views aligned well with the general thrust of the initial propositions drawn from the four cases and added additional insights. Interviewees were asked to reflect on the third research aim, examining what the centre can do to support the alternative ways of working they described. A focus group discussed overall themes and further considered centre support for effective experimentation and learning in policy implementation.

The evidence from all of the above sources has been used to formulate the discussion of complex implementation and the lessons for New Zealand's public management system that follows.

## **Complex implementation**

It is widely appreciated that policy formulation should take account of a full range of implementation<sup>1</sup> variables—who is expected to do what, when, with whom, with which resources, and so on, and with what sorts of likely behavioural responses to those activities. Good policy design 'looks ahead' to implementation and evaluation, thus collapsing analytical distinctions (McConnell, 2010; Hill & Hupe, 2009). In addition, managers understand that there is often no one-way door to the world through which a formulated policy passes to be implemented. As policy activities play out, policy management iterations are influenced both by what is learned from evaluation and other feedback and what changes ensue from political directives. Policy analysis conducted inside the government agency and sensitive management practices may remain sufficient in situations where there is little debate about the track to be followed (McConnell, 2010). This research focused on the situations where traditional practices are insufficient—those in which both good ex ante policy analysis and continuous policy management processes are challenged due to the complexity of policy implementation. Recognising when the latter applies is not straightforward nor a matter of applying rules.

In complex implementation, managers face several salient conditions:

- A policy seeks to change or influence the behaviour of many independent actors (organisations, community groups and/or individuals) over whom there are no direct means of control. There is a range of activities, involving various agents, which could influence the overall policy outcome.

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<sup>1</sup> Hill and Hupe (2009) canvas a range of definitions of implementation (pp. 7–8), concluding with a preference for defining implementation as what happens between policy expectation and (perceived) results. We agree with this process-based characterisation, and not one in which there is first some policy which is then 'carried out'. Moreover, policy and action are a continuum in the implementation process: paraphrasing Anderson (quoted in Hill & Hupe, 2009, p. 7) policy is being made as it is implemented and implemented as it is made. Indeed, we are much attracted to the very broadest definition (as are Hill & Hupe), attributed to O'Toole, "performance via governance in the delivery of policy results". Governance in this sense refers to "the way in which collective impacts are produced in a social system" (Hill & Hupe, 2009, p. 13).

- The knowledge required to bring about the desired change is highly distributed in the communities, organisations and individuals where change is to take place and is unknowable at the point when policy decisions are being made. That is, there is no central node where knowledge considered necessary for well-controlled decisions can be mustered, made sense of and managed.
- For functional necessity, policy actors simplify aspects of the situation; matters that are consequently overlooked become relevant and known only over time and through action, therefore adding to the management challenge.
- Objectives may be clear only at the highest and most abstract level. Lower-level perceptions of the nature of the problem, appropriate elements of solutions and mandates may be contested.

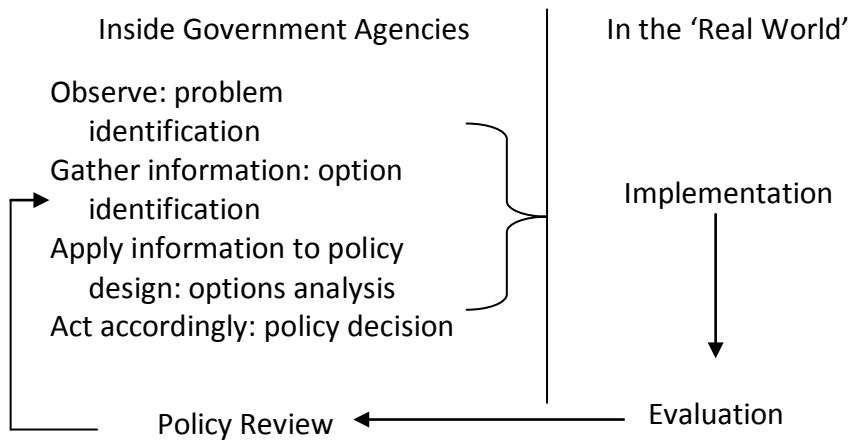
Conventional policy design and implementation remains effective in some situations, but often the sorts of conditions described above make it difficult to sufficiently anticipate what must be done to implement policy. Policy managers regularly lack the fundamentals that conventional practice guidance often assumes they can rely on, such as an adequate information base, clear role assignments, and predictable influence patterns, timeframes and milestones. Complex implementation situations call for a repertoire of practices that augment the extant practices of within-agency analysis and management. These practices would be:

- Experimental: Policy implementation practised explicitly as experimentation, and public servants accorded appropriate latitude to learn from action.
- Learning oriented: On-the-go learning arising from repeatedly searching for what does not fit the expected pattern followed by adapting actions to take into account new perspectives arising from plausible explanations about what is occurring.
- Procedurally accountable: Policy implementers accountable for their experimentation and learning and for successive iterations of policy design, and for outcomes determined as a function of what emerges from the interaction between policy objectives, actors involved in implementation and context.
- Collegial: Policy implementers would be able to learn from the work of others, to gradually build up an evidence base focused on complex policy implementation.

The case studies offered signs that some policy practitioners are using these practices ahead of attempts to pin them down in any fully diagnostic sense. Thus, to aid better articulation of public management practitioners' repertoire of practices, and to push against their boundaries, the conventional approach to policy making was contrasted with a new model, based on the literature studied and the case findings.

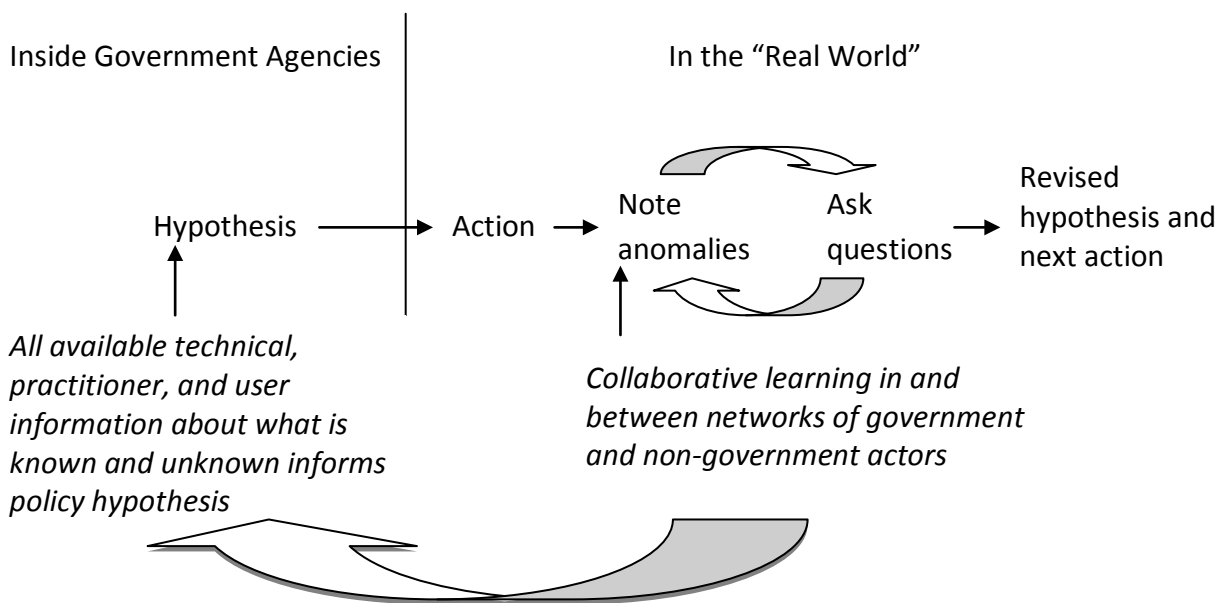
In this stylised conceptualisation, two contrasting models of policy implementation were identified. Figure 1 assumes that policy design and implementation follow a linear, staged process (such as set out in Bardach, 2000), most of which occurs within the responsible government agency. Existing knowledge is marshalled and options are identified and compared, taking account of implementation requirements. A policy or programme is implemented outside of the originating agency, and is evaluated after some period. The evidence from evaluation may lead to further policy changes to be developed internally and implemented externally. The focus is on getting the policy 'right' through the successive iterations. Figure 2 provides an alternative model, which adopts a pragmatic orientation to understanding a real-world problem.

**Figure 1: Agency-Centred Model of Policy Design and Implementation**



Although the government sets broad objectives (as always), Figure 2 shows that more of the policy process occurs outside the government agency. The understanding of the problem formed through the traditional means of policy analysis is treated only as a tentative hypothesis which requires testing in the real world, outside of the government agency. Testing takes the form of actions with collaborators such as individuals, community groups and NGOs. These actions result in feedback that contributes to a review of the original policy hypothesis. As a result of the repeated iteration of this process, the policy design will be modified to retain those actions which produce changes towards the desired outcome, and to abandon actions that do not produce demonstrably good results. Thus the policy design is a work in progress, constantly adapted to take into account ongoing change occurring in the community. Different individuals with different experiences bring different perspectives to a situation. Over time, the perspectives shift through interaction. They interfere or reinforce others in a manner expected from complexity theory's treatment of feedback loops. In this model, policy implementation and policy design occur together and both are constantly updated as learning occurs from doing.

**Figure 2: Experimental Model of Policy Design and Implementation**





Moreover, this learning process depends on active collaborative arrangements involving a network of policy actors from within and outside of government in the absence of a comprehensive, logical plan that articulates the problem *ex ante*. As shown in pragmatism, beliefs, not evidence provide grounds for acting. The practitioners compare their beliefs with observed challenges to those beliefs. The pre-eminent disposition is the ability to see inconsistencies and to be surprised. The detection of the unexpected in the course of focused observation requires thinking and deeper probing to challenge existing understanding; surprise, and the genuine doubt it entails, sparks new questions and new ways of seeing that may lead to a refined hypothesis. Observed effects of actions targeting desired ends are used to update both what is desired and how those ends might be best pursued (Bromley, 2008).

## Characteristics of Complex Implementation

Using the initial four case studies and the examples discussed by practitioners stimulated by the models in Figures 1 and 2, some broad themes emerged, which are pertinent to complex policy implementation. These are summarised in this section. Participant comments are italicised.

### *Wicked problems*

Complex implementation is most often associated with wicked problems. These are problems where there are multiple perspectives on problem causes and solutions (e.g. family violence or school failure), there are no clear, unambiguous, and lasting solutions, and systemic responses are required. When government policy systems try to tackle such problems, no matter how thorough their analysis, there is likely to be as much unknown as known, and other actors, outside of government agencies, hold some of the information and expertise required for understanding of the problem and its solution. There may be less need for brand new interventions, but need for more flexible, adaptable, tailored uses of what is already available. Even relatively simple problems, such as raising the GST rate, can be complex in their implementation because of the multitude of actors involved in the implementation and their different priorities.

*Government agencies can't do it by themselves—they have to be in the outside world, everyone with a stake has to be taken seriously and the agency has to take all their stakeholders with them.*

A strong egalitarianism favours some implementation approaches, which can be most clearly appreciated in the reverse case occasioned by emergencies. In emergencies, actions cannot be thoroughly planned and cross-checked against various criteria and the environment exerts significant influence on what happens, for whom, and with inevitable 'errors'. Even in the absence of a crisis, progress toward policy objectives may occur unevenly and in small bursts. Yet, small successes, as with the apparently one-off observations from crisis management, are difficult to embed sufficiently in practice expectations before activities revert to prior default settings.

### *Clear vision and high-level goals*

A statement of vision, and the articulation of high-level goals, is an important first step in any complex implementation. Sometimes goals will not be agreed at the outset, and part of the implementation process must include reaching a shared agreement across all the relevant actors about what the goals should be. This, in turn, involves understanding the expectations created by the mandate outside of the government agency and understanding what might be involved in achieving the vision for different actors.

*Information is not knowledge. There is a need to understand the complexity of how others view the same information.*

*Getting and keeping a mandate to work towards an outcome—this can come directly from government or more indirectly from ‘out there’ and people and businesses that see a problem that needs fixing.*

### **Networks of actors**

In complex implementation, there are networks of interdependent actors both inside and outside of government agencies, not all of whom will initially understand the vision/outcome. Some of these might have aligned interests and support the outcome, and some might not. Ignoring the latter could imperil the implementation.

*You have to get everyone at the table and they have to hear each other because that is part of the process of socialising the issue and building understanding that might lead to agreement on what needs to be done.*

### **Learning as you go**

A strategy for coping with complex implementation is to treat it as an experiment—a learning exercise—where each step in the implementation is an opportunity to gather more information, reassess assumptions and modify the implementation plan accordingly.

*[Peter] Senge had the right idea—you set a milestone you can see or that feels tangible enough to be achievable, and then when you get there you stop and assess things again before setting the next milestone. You can’t map it all out at the beginning because there is so much that you don’t know.*

*I think it is the acceptance of the experiment—and not having to have everything planned and developed. If we had spent our time on intervention logic and stuck to that, we wouldn’t have been able to be as nimble.*

### **Sensemaking and reflection**

Complex implementation requires ongoing sensemaking (Weick, 1979) and deep reflection to unearth discrepancies between actual and intended or espoused practice by each of the actors.

*People do not always say what they mean/do; or mean/do what they say.*

*I noticed [in the department] that when we got negative feedback, people went “oh we should control that!—shut it down!”. We resisted that. We listened to it. We didn’t shut it down. And we didn’t get completely rattled by it either. You can’t control that sort of thing. You have to work with it.*

Similarly, paradoxical ideas may be present in the field, and it can be better to work with them than to artificially resolve the paradox.

*One stakeholder argued for a more restrictive rule, but the underlying rationale turned on their interest in maintaining the maximum amount of flexibility.*

### **Knowledge gaps and untested ideas**

Even when there is a research and evidence base to draw on, there will be knowledge gaps, especially about local-level dynamics and how individuals, communities and organisations might

respond to the policies being implemented. Therefore government agencies need to be more aware of what they do not know.

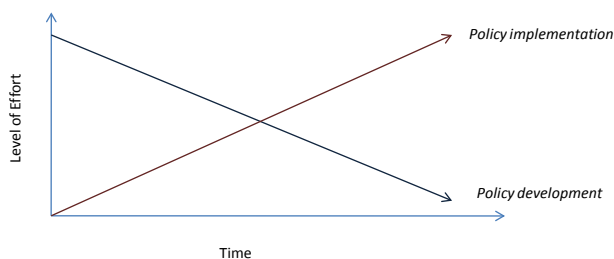
Implementation actions might be seen as exploratory exercises to test tentative theories and ideas, and to 'find out'. Even when a policy decision and its implementation appear simple, for example, "raise the GST rate from  $x$  to  $y$  at time  $t$ ", implementation is complex because the ideas the government agency might have about *how* this should be done are untested. Policy implementation can be prototyped and tested in real-world. 'Policy design' translates policy decisions into a working plan that will operate as intended in the real world, as opposed to theoretical model with unknown real-world performance.

*We spend a lot of time prototyping what the implementation might look like and then testing that against the real world.*

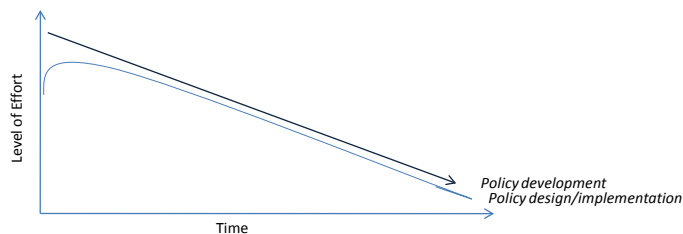
*Our approach to implementation has changed completely. Where once upon a time, the implementation thinking did not really begin until the policy development was well down the track [Figure 3, diagram A], we now begin to design the implementation, hand in hand with the policy development, right from the outset [diagram B].*

**Figure 3: Time Profiles of Policy Development and Implementation**

A: the old model



B: the design model



### ***Anticipation of surprises***

Complex implementation results in unexpected interactions and results. Therefore, as well as a willingness to learn from what is occurring, attention is also needed to spot the emergence of phenomena and patterns of behaviour that were not intended. Such surprises should be expected and some of these will support and accelerated the intended trajectory of change.

*There are ways that we do things that create a whole that is greater than the sum of the parts. We are doing the opposite of what a conventional public servant might do. . . . We had to believe that a point comes where you no longer have to drive everything. The ownership gets wider and the distributed network has taken over and driving it. . . . So*

*many projects never get to that stage because public servants are afraid of stakeholders. They are risk averse.*

Where the patterns of behaviour that emerge undermine the intended direction of change, they need to be disrupted early before their effect comes to dominate the overall direction of change.

*You need to be collecting data about what happens during implementation and making it available in the policy community so that you are already thinking about the next [round of] review as you implement the changes.*

*A promise to monitor the effects of what you do takes away the high stakes of change because if it looks like turning to custard you can do something about it before it is too late.*

### ***Distributed information, decision making and accountability networks***

The information needed for implementation design and monitoring of implementation is highly distributed among actors, many of whom are outside government agencies. As independent decision makers, these actors will act according to their own interpretation of what is occurring and what they think is going to happen next. In this context, accountability for what happens is problematic. Government agencies need to be clearer about what they do and do not know and also what they are accountable for. In complex implementation this might take the form of evidence of change in the intended direction, rather than performance of specific actions.

*We teach problem definition and solution generation before you have even talked to people. And then we pick a solution, plan the design and then you implement it. That is just fine when you know what you are working with and there is high agreement about the problem and the solution. But where you have a high level of uncertainty about what works and how to grapple with it . . . then the same old-same old will not work. We had to learn to chart a course and keep the navigation going and not lose sight of the goal.*

## **Supporting Factors**

Discussions with policy practitioners about their experiences in complex implementation resulted in identifying a range of factors that support an experimental approach to policy implementation. Among the lessons of experience were the following:

- An experimenting approach to implementation requires both a mandate for a strategic goal and the permission to pursue that goal flexibly, learning from and adapting to new challenges.
- Detailed plans and objectives have to be allowed to emerge through practice.
- Planning for implementation needs to start early, alongside policy development.
- Multiple types and sources of expertise are required.

Complex implementation requires a base of skills and capabilities. Policy practitioners need relationship skills to interact with the diverse networks of individuals, organisations and communities which might hold some of the information and resources needed to achieve the policy goal and outcome. They need to be able to deal with ambiguity and changing situations without losing sight of strategic goals. They also need to be sufficiently flexible and nimble in their thinking and actions to take advantage of the serendipity that will arise during implementation.

An experimenting, learning approach to complex policy implementation requires the support of evaluative findings. To provide a basis for learning and further policy development in complex and fluid implementation situations, evaluation approaches need to be flexible and attuned to the needs of key decision makers. Some recently developed evaluation approaches meet those needs. Developmental evaluation, as described by Patton (2011) provides one example of an evaluative approach that fits well with complex implementation. Developmental evaluation brings information to bear in support of an ongoing process of innovation and change. It suggests an ongoing process of dialogue with different stakeholders. In developmental evaluation, participants may ask not only what elements of the policy model have been implemented and why, but to what extent the original policy model remains appropriate and what new elements have been added to the model. Key questions for a developmental evaluation include: What issues have emerged? What unanticipated consequences have been observed? What has been learned about the implementation process? What factors have emerged as important for future policy development?

Patton’s views on evaluation emphasise questioning, and thus align with a pragmatic mindset and the findings from this research. “Questioning is the ultimate method” (Patton, 2011, p. 288). The activity of questioning starts in situ (p. 229) becomes a means of intervention, of “questioning as we go” (p. 229), affecting not only the evaluation report but the very policy that is reported on. Thus, Patton privileges the role of the evaluation professional as part of the policy/implementation team. The evaluator is a facilitator and learning coach; a conduit bringing evaluative thinking practices to those in need of it; a “friendly critic” or a “burr in the saddle” (Patton, 2011, p. 25).

## Role of the Centre

The ‘centre’ in this research was deliberately defined loosely at the outset. The findings suggest that there are at least five levels of centre, each of which can offer support in different and complementary ways:

1. The chief executive and senior leadership of individual government agencies;
2. Collectives of chief executives or deputy chief executives who adopt a leadership/championship role with respect to a particular outcome;
3. The central agencies of State Services Commission, the Treasury and the Department of Prime Minister and Cabinet, which develop and monitor policies and guidelines affecting all government agencies;
4. The ministerial executive of government which makes up the Cabinet; and
5. Parliament and its machinery, such as select committees.

Table 1 shows roles for each of these levels to support experimentation and learning in policy implementation.

**Table 1: Supporting actions for the centre**

<i>Support required</i>	<i>Support action</i>	<i>Action level</i>
Clear accountabilities	The centre should hold people accountable for setting and holding to strategic goals, doing the initial policy development effectively, and learning from changed or emerging circumstances.	1,2,3,4,5.
Success framed in different terms on the basis of experience	In the complex space where there are many actors, achievement of the outcome will involve a mutual adaptation between all the actors and therefore calls for flexibility in policy implementation to achieve more lasting community driven results.	1,2,3,4,5

Reduced reliance on steering groups as control and accountability mechanisms	Steering groups may effectively monitor risk, but can also create a culture and practice of risk aversion. There is a need to overcome a tendency to 'lock-in' tentative, experimental actions to allow a 'fast fail' which learns and adapts from mistakes.	1,2,3,4
'Tight' focus on purpose and outcome but 'loose' focus on means	Ministers, CEs and senior management need to be clear about the change they want. Policy designers need to provide flexibility in the means by which objectives can be achieved. Policy implementers need to invest in understanding the individuals, organisations and communities that have to be part of the change process and how they might actively support the change (as opposed to simply complying).	2,3,4,5
'Champions' groups at senior and influential levels	Policy practitioners operating in complex implementation lack champions who understand the nature of the processes being created. Few of the current senior management group have experiential understanding of complex adaptive implementation processes. It was suggested that having CEs and deputy CEs 'get their hands dirty' by more direct involvement in a complex implementation might broaden capability in this respect at senior levels of the public service 'because they have some skin in the game', i.e. a personal investment in achieving an outcome but not necessarily 'the' outcome.	1,2,3
Organisational learning	A deliberate intent and practice of learning from experience implementing policy is needed to enable the organisation to more fully and deeply understand its diverse client groups and their multiple perspectives and how this knowledge might inform future strategic thinking and planning by the organisation. Organisational learning implies an organisational memory—a capacity for retaining lessons of experience—as well as a culture shift from an expert orientation to that of learners.	1,2,4
Space for experiment and learning	Complex policy implementation needs permission and the space and time to engage with actors who need to be part of the change. Allow for self-organisation of communities to occur around policy attractors and emergence of desirable behaviour to occur. Implementation planning needs to be able to adapt to allow these other actors to lead in places where this supports the policy objective. Policy implementation might be viewed more as a 'new beginning' than as a policy end.	1,2,4
Asking questions that might not have answers	Ministers and chief executives should expect that there are some questions that cannot be answered at the time and that part of the process needs to be finding out more that will help make progress towards the policy objective. Information on what is not known may be as valuable as information on what is known.	1,2
Recruitment of skills	More diversity of skills is needed in policy development and implementation design. Ideally teams might become more transdisciplinary with individuals bringing more than one skill set and knowledge base to policy design.	1, 3
Development of capability	A deliberate development of relationship and communication skills is needed to work in inter-organisational settings and with diverse values and cultures, along with analytical skills.	1,3

## Conclusion

Complex and wicked problems require new ways of doing policy implementation. New ways of doing implementation entail

- Collapsing the conventional distinction between policy design and implementation;
- Augmenting the conventional model, in which policy is designed in-house along with a substantial implementation plan that is subsequently rolled out and managed, with a model in which policy/implementation is produced outside under the pervasive influence of the complexity, uncertainty and ambiguity of the problem;
- Adding an ongoing learning orientation to existing problem and outcome orientations, in which the locus of learning is out in the world (in the problem-solution-outcome context);
- Redefining the objectives of policy evaluation by accepting that much of the knowledge that is necessary for the success of the policy emerges as part of policy/implementation practices and must be gained and applied on the fly; and
- Developing a deliberate organisational learning perspective to evaluate and learn from practitioners' experiences about a sector, its processes, and how outcomes are achieved during complex implementations.

In short, successfully implementing policy for many policy problems is complex. It involves a whole system and multiple, open mechanisms that lead to emergent processes and outcomes, in a web of relationships and influences, almost all of which are not able to be controlled by the implementing agency. Aspects of implementation as a complex process may also apply to problems that are not themselves considered to be complex.

Although policy analysts and advisors have little difficulty generating lists of things that might be done—some advisory service here, a social marketing campaign there, or a community partnership somewhere else—their existing theories and evidence about how and why policy 'works' serve as mere starting points, and the real work of design and implementation co-evolves in continuous contact with the changing nature and knowledge of the problem and the outcomes that are produced. This recognition requires a reframing of the role of the policy evaluator as a person who applies skills in presenting knowledge in context and to implementing and implemented-upon actors, getting alongside them and bringing them along. For implementers, a key implication is the need for experiment-conducive management systems and rules of accountability.

In complex policy situations, characterised by large stakes and uncertainty, as well as in the everyday policy decisions that can have profound implications for individuals' wellbeing, a strong case can be made for learning as we go. A renewed pragmatic practice brings experience into the many efforts to create the futures we want. Making use of evidence seamlessly requires applying continuously a habit of mind which asks not 'what are the facts?' but 'what is the next question?'

While the nature of complex problems and policy implementation means that there will never be a fully transparent and shared body of knowledge about what works to effect desired outcomes (nor stable ideas of what outcomes are possible), the public sector as a whole can seek to overcome three challenges: (1) that the initial efforts might not be as good as they could be because collaborative learning is limited; (2) that the lessons of experience are not made available to wider policy communities; and (3) that those who follow have to (re)discover the lessons of experience for themselves. Addressing these challenges requires policy designers/implementers to learn as they go and to allocate sufficient time to that learning, both as a share of time devoted to all policy tasks and as a new temporal rhythm in general. Successful complex policy-implementation requires a dogged focus on the future common good and a commitment to gradually work and talk our way there.

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# Appendix 1: Features of Complex Systems

## ***1. The system 'whole'***

Complex systems feature many interacting parts, with interdependent dynamism between them, such that the 'whole' cannot be understood as the sum of its parts, or reduced to its parts to assist understanding. This 'whole' behaves as a system. Individual humans and social groups of humans, formal (e.g. organisations) and informal groups, are complex systems (this and subsequent material draws from Eppel, 2010, and Eppel et al., submitted).

## ***2. Nested, interacting and interdependent systems***

Complex systems can be nested within larger and larger complex systems. Nested systems show 'self-similarity' because the characteristics identified at one level of the system are also present in the 'whole'. In order to understand the interdependence of these nested, interacting systems, a holistic view is needed.

## ***3. Adaptation and co-evolution within and between systems***

Over time, reflexive changes in one system lead to adaptations in interacting systems, and co-evolution. From a complexity perspective, the 'external' environment is an interacting system. Therefore, changes in the environment may not only stimulate system change, but also external change in response. As a result, there is co-evolution and adaptation of a system and its environment.

## ***4. Change through self-organization and emergence***

Self-organization and emergence are features of complex social systems. Every change produces the stimulus for further change by self-reference to the internal state and adjustment to compensate internally and externally. Change in socio-economic systems occurs as a result of forces which act on the micro-diversity that emerges within the system as a result of feedback loops, adaptation, emergence. Emergence of new levels of order will occur through self-organization of system parts around 'attractors'.

## ***5. Open systems and socially constructed boundaries***

Social systems are open to their environments and their boundaries are not constant or fixed. Boundaries are social constructs—artificial or socially imposed reference points—which define the limits of knowledge considered pertinent to the system and to the human agent who generates that knowledge.

## ***6. Multiple interactive systems, creating feedback mechanisms within and between systems***

Feedback loops are reflexive influence patterns, which arise from interaction between system parts. Negative feedback undoes or compensates for changes elsewhere, resulting in macro-stability. Internal features of organizations—such as structures, hierarchies, rules, controls, cultures, defensive routines, and power relations—are held in place by feedback loops locking an organization into a particular stable pattern (Morgan 1997). Positive feedback loops amplify changes by reinforcing the direction of change. They can cause sudden, unpredictable and destabilizing effects.

## ***7. Stability is not equilibrium***

Despite a sometimes stable macro-appearance, complex systems are in fact 'far-from-equilibrium'. Such systems can suddenly and unpredictably undergo changes at some critical 'bifurcation point'. Far-from-equilibrium systems are often marked by tensions or paradoxes, as changes in the feedback loops destabilize the system and this change or instability can be disproportionate to the stimulus. At bifurcation points, new patterns can self-organize and emerge from the seemingly

chaotic without external intervention. Social systems are both chaotic and stable depending on when one observes them.

### **8. *The history of the system influences its starting point for change***

System histories, starting points and feedback loops can create 'path dependencies'. Stabilizing path dependencies arise when negative feedback loops undo externally imposed change or limit what happens next. Stable systems are more likely when there is a single, strong attractor influencing feedback loops. Less stable systems are characterized by multiple, weak attractors. Furthermore, the size, precise timing and nature of change in a complex system cannot be predicted in advance because of the sensitivity of the system to its initial starting position and contingency of the interactions between the system parts.

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## Appendix 2: Pragmatism

Pragmatism is a philosophical framework that (amongst its tenets) views knowledge as both constructed and a function of organism-environment transactions; believes truth comes from experience; and is problem-solving and action-focused (Greene & Hall, 2010, p. 131). Pragmatists “live and act together” in a world “for which [they] have a shared responsibility” (see Biesta & Burbules, 2003, p. 108). Pragmatists see the “world as a place where things happen or they don’t . . . where progress is achieved by way of experimentation, trial and error. . . . pragmatism is a mind-set and a world view” (Harrison, 2009, p. 5).

In pragmatism, knowing is about doing, not having. “When faced with new and unfamiliar choices, the process of learning precedes choice: we are forced to work out our beliefs about the situation as we contend with the situation” (Bromley, 2008, p. 5). Bromley argues that in a policy context, we must be able to offer reasons for beliefs about the outcomes of available options. Further, since the future is changing as we seek to go there, we reason to defeat this indeterminacy. This is not some specialist capability—it is an acknowledgement of how people in practice respond with reasoning, not calculation (Bromley, 2008, p. 4).

Pragmatism suggests that all knowledge is fallible and that “individuals rearrange their perceptions/experiences to form new ideas” (Snider, 2000, p. 129). Knowledge is always open to additional interpretation. Its focus is on inquiry, its qualities and what the inquirer knows or does not know, not on knowledge as object. Inquiry, especially in Dewey’s formulation, rejects “a sharp dichotomy between theoretical judgements and practical judgements” (Hookway, 2008). We must, according to Stewart (1997), “be willing to test the consequences of our beliefs or explanations, particularly when doubt arises . . . [and] using human judgment rather than merely mechanical calculations, test [our] explanations *and* assumptions against those problems that [our] explanations and assumptions are supposed to solve (p. 21, emphasis in original).

For Peirce, his ‘method of methods’ for acquiring and developing knowledge was “synonymous with the experimental method of the sciences” and indeed of learning in everyday life (Stewart, 1997, p. 1). The process of questioning as we go implies integration between thinking, planning, trialling and objectives-setting, in which “thoughts about possible outcomes in the future are created once we find ourselves in the context of action: what should I do? We work out what we think we want as we work out what we think we might be able to have (to get)” (Bromley, 2008, p. 4).

Inquiry is cumulative, as is learning throughout life. Peirce wrote that “reasoning should not form a chain which is no stronger than its weakest link, but a cable whose fibres may be ever so slender, provided they are sufficiently numerous and intimately connected” (quoted in Hookway, 2008). Mixed methods research develops cables of this sort when done well. Haack (2003) reinforces this point, claiming that “scientific evidence [is] a tightly interlocking mesh of reasons well-anchored in experience” (p. 3). In this alternative picture, ‘evidence’ is embedded in an extensive web, and is not universally ‘true’.

Charles Beard, writing in the early 20<sup>th</sup> century, favoured “apolitical efficiency” (Snider, 2000, p. 123), was concerned with “tangible consequences and with what works” (p. 134); was adamant that administration be stripped of any possible arbitrariness. As a consequence, administrators were required to adopt impersonal knowledge practices, and engaged social scientists as “technical servants to social administration . . . providing sheer methods and facts” (Dehue, 2001, p. 288). “Social scientists rapidly adapted to the new demands and began to focus on knowledge that was instrumental rather than reflexive, standardized rather than discretionary” (Dehue, 2001, pp 288-9).

The pragmatic undercurrent suggests a coherence of inquiry that could move evidence-based policy making beyond its static rhetoric. Pragmatism may be said to have three key features as a method of inquiry (Stewart, 1997, p. 1). These features convey a progression from (1) discomfort/ problem/ need to act to (2) ‘hypothesis’ and its test, followed by (3) observation of consequences. Haworth notes further that “without (2) the blindness of the social process would be unmitigated. Without (3) there might be control, but there would be no assurance that the control was having the desired effect” (p. 34). Some samples of this three-part progression are in Table A1.

**Table A1: Three features of pragmatism**

	<b>Follett</b>	<b>Stewart</b>	<b>Haworth</b>	<b>Briggs</b>
1	We evolve a so-called common will	identify the problem at hand. . . put the consequences of our beliefs or explanations under the light of doubt	In order that social control may be realized, the capacity for defining goals, plans, and policies must be drawn upon, a capacity possessed only by human beings. But planning is only a first step in social control . . .	Ideally, we need systems that are informed by evidence at each stage of policy development, from when an issue is first identified,
2	then we take it into the concrete world to see if it will work	devise, using all the creativity you can muster, an explanation . . . that you believe might at least partially solve the problem	In addition it is necessary that the plans be acted on or in some way put into effect, and	to the development of the most appropriate response,
3	Insofar as it does work, it proves itself; insofar as it does not, it generates the necessary idea to make it “common”	carefully and assiduously test your explanation . . . against the problem . . . and observe and record the results of this testing for errors	it is subsequently necessary that the relation of the results with the desired social condition be discovered	and subsequent evaluation of its effectiveness.

**Sources:** Follett, (early public management theorist), 1918 (in Snider, 2000); Haworth, (political philosopher), 1960, p. 34; Stewart, (philosopher), 1997, pp. 22-23; Briggs (senior public servant; foreword to Banks, 2009).

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