Can Applying Complexity Theory to Problems of Public Interest Improve Policy?

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While we have had success at improving overall wellbeing in Canadian society there are some problems that have remained resistant to policy interventions. The "wicked" social problems come immediately to mind, but there are numerous other examples in critical areas of innovation, productivity and environmental management. Problems of this nature are often referred to as complex.

Early work from complexity science provided policy makers with better understanding as to why some situations can remain stubbornly unresponsive to government action, but it did not offer suggestions for different approaches that would lead to better results. Further, advancing a new descriptive language in the absence of better tools for intervention did little to improve the policy maker's dilemma (Paul Cairney, 2010) .In recent years work has advanced significantly and in particular in the areas of applied management that show promise for application in the Public environment.

The methods and analytic practices of governments have, however, remained largely the unchanged. Current policy approaches presume an ability to analyse the issue from an outside point of view, make deep assumptions about stability of the policy environment, and continues to deploy policy instruments that were designed to work within a simpler context.

The question is can we do better?

The Series

This, the first of three briefs, focuses on suggestions to improve the early stages of the policy process. The two to follow explore the use of new policy instruments, and examine strategies in evaluation.

This Paper

This paper is divided into three sections: the first section argues that policy committees should become more active in guiding the research agenda for complex issues, the second section identifies four areas where the conduct of analysis can be improved, and the third section provides more detail on approach to enhance the decision support mechanisms for complex areas.

What we now know about complex social systems suggests that altering our approach in the area of diagnostic, instrument selection (including the use of new instruments), and evaluation can improve the impact of public policies.

The Canadian public sector has invested heavily on establishing an evidence based discipline for policy discussions. The analytic approach has privileged the discovery of causal links between the problem and the proposed course of action, setting a desired policy outcome, and, planning steps to achieve it. The presumption of "known" causality is reflected in the "policy cycle" (Scott), and in metaphors such as "policy lever" embedded in the language of public administration.

While many issues of interest to policy makers lend themselves to diagnostic focused heavily on uncovering causation, there are situations where the cause and effect relations may be numerous and or obscured and may be impossible to disentangle prior to initiating action. Traditional approaches to developing a diagnostic in these circumstances will generate conflicting and inconclusive results. Early stage work can advance more quickly by explicitly recognizing that policy environment is complex and should be handled differently. This requires identifying complex issues at the early stages of policy cycle as the treatment of these issues will take a different course involving different decision support mechanisms.

Not all public policy issues should be treated as complex. To do so would increase costs and not likely produce more effective responses. An important first principle in using complexity science in public policy work is "bounded applicability" (Snowden D. , 2010); the policy tools and approaches we have are good when applied in the circumstances where they have been proven effective. We have excelled at creating responses which can be applied across large populations using standardized delivery approaches.

For situations that change rapidly, or where large numbers of forces are interacting creating instabilities, interventions have been less effective. What might we do that is different?

In most government organizations the conduct of policy analysis is considered to be the same irrespective of the nature of the issue. In consequence not much discussion occurs on research, analytic approach and what will constitute requisite decision support for different classes of policy problems. This is a mistake. A useful exercise during preliminary policy discussions, most appropriately during the discussion of the medium term agenda, can be to look at issues facing the department or government where there is little agreement on the appropriate course of action and where there is a history of inferior results (Kurtz & Snowden, 2003). It can be useful to during the discussion to establish where they exhibit characteristics which suggest complexity may be playing an important role (Kurtz C. , 2009). The use of a framework can help make sense of these differences and may strengthen the policy development process by better aligning how we proceed on research and analysis with the nature of the policy challenges.

Key Message

Complexity work began in the natural sciences and has migrated to other disciplines. As a paradigm it has created an explosion of exciting work in economics, social sciences and management science to name but a few. Critical advances from a public administration perspective have seen the emergence of analytical approaches which have the potential to produce more effective policy response. These new public management approaches suggest some changes are needed to the policy process. In particular early stage work needs to contextualize policy challenges to better understand the applicability of existing instrumentation and approaches and consider novel instruments which will need to be used under a different set of initiating and evaluative conditions. The leadership provided will have a crucial role of ensuring that full advantage of advances is realized. By expanding the scope of the early stage policy discussions to include greater consideration of the policy context and explicit consideration of the research plan there is a better possibility that decisions can be taken sooner and with better management of the attendant risks.

Four areas of particular attention are suggested as a way of increasing the effectiveness of policy. They are: mandating the scope of research to provide a deeper understanding of the context including the use of first hand qualitative and narrative study, the employment of finer and more visual analysis to identify patterns subject to policy influence, the explicit consideration of coherence with other actors and activity at the earliest stages of the policy committee work, and finally, that senior management take an active role of deciding the requisite measures of impact to permit early implementation of an exploratory approach.

So just how different should the policy process be when dealing with a complex issue?

Every policy practitioner has been at one time or another frustrated by contradictory or weak evidence coupled with a call for more research. Sometimes it is not more but different that is needed. Why? There are four answers.

First, in complex problems context matters much more. It may be impossible or imprudent to separate the issue from its context. Understanding the broader environment and in particular using the knowledge that may be held uniquely by individuals and groups who are involved directly becomes more critical and should form an explicit part of the research planning.

Second, there is a shift needed from an approach which deconstructs the problem looking for causal links to one that looks to make enough sense of the situation to act. Examining less refined data for patterns may reveal opportunities of influence. This kind of pattern detection is frequently better done by senior staff. To paraphrase Snowden we need to start mapping, to facilitate experimenting and evolving policy rather than analysing and designing it. Traditional presentations should be supplemented by using qualitative and ethnographic techniques such as narrative research and looking at continuous capture rather than exclusively at survey approaches.

Third, because the policy approach by definition will be systemic, attention to coherence with other actor's intentions is essential. An effective response may involve recognizing an emerging identity that could create a platform for cooperation or co-creation of solutions. Understanding of the deeper motivations of the actors through developing continuous empathetic awareness becomes more critical. The use of agent based analysis can be helpful but with complex issues policy is a contact sport and the engagement discussion needs to be held at the beginning of the work

and seen as an integral part of the policy response.

Finally, the decision to initiate action will occur earlier than will be comfortable and without benefit of pre-establishing causal links. The response will be experimental and the conditions to ensure learning need to be established in advance of the decision to both properly identify the risks as well as ensure effective management of the knowledge that will be generated. So attention needs to be paid to what will be the initiating conditions for the policy response rather than the anticipated outcome. These conditions should include a design that will set out the strategy for learning, establishing the criteria for scaling up successes as well as establishing how any failures can be quickly and safely discontinued.

The purpose of the policy committee's deliberations of complex issues shifts from identifying a policy fix to making enough sense of the situation so that experiential learning can be initiated. It is senior members of the policy committee with access to ministers (who are in direct contact with local actors) that are best placed to mediate the pressure for policy to effective decision support and will need to look at less processed material to take advantage of their experience and tacit knowledge. This approach necessarily creates some tension in the definition of 'readiness' for Cabinet, but in reality it better reflects the limits of the public administrations capacity and promotes a better opportunity for the Government to access political risk. It also means that there should be an upward as well as a downward management of the issue from an early point.

This involves a more "hands on" by senior staff at early stages in constructing the approach to engagement and the evaluative framework.

Early stage policy discussions can be improved by explicit discussion of the nature of the policy challenge focusing on the nature and sources of complexity. Is the matter complex because of the interactions within the system? Are agent interactions a source of complexity? Is the complexity been driven by normative considerations?

Presentations of complex policy problems should speak as much to context as the issue itself. The response is likely to be influenced by several agents/actors with an interest in the issue. Understanding their capabilities and motivations and whether there is or could be an constructive identity that can be formed around an approach needs to be part of the work.

The systems context also becomes important as there are usually many interactions shaping and altering the policy environment. This requires research that gets closer to what is happening around the issue. Advantage is gained by favouring increased use of qualitative methods involving the people directly involved to supplement more traditional fact finding. The use of practitioner's knowledge both from within government organizations as well non-governmental organizations can provide additional insight in making sense of the situation. The key is to structure the policy discourse and the research that supports it in such a way that it is not a collection of opinions. An approach that is showing promise involves the use of narratives signified (interpreted) by the subject at the point of capture.

The kind of research mentioned here, has been performed only rarely in Canada.

The purpose of the policy analysis in complex systems shifts from looking for causality to portraying the policy landscape and identifying surface as well as deeper and more subtle areas of potential influence. As patterns (spontaneous local leadership, novel approaches, and community sentiment) become important indicators of opportunity, analysis needs to be more granular, less processed and presented in forms that take advantage of our visual acuity. Statistical treatment is essential to ensure credibility and confidence, but conventional high levels of aggregation are replaced by material which can reflect much greater localized detail

 Diversity of input is important during the discussion and consensus may appear weaker especially during the early phases of the work. Policy decisions should expressly recognize that co-production of response could be involved and so the potential partners should be exposed to the analysis and may be potentially involved in augmenting the analysis at an early phase. In fact the framing discussion itself may be a part of the response and this should be considered early on.

We have for a long time understood the horizontality of much of our policy work, but, our mechanisms remain largely procedural and are employed later rather than earlier in the process. Public sector leaders can play an important role in directing the horizontal process at the early phase of the discussion. This does not imply that everyone has to be involved in everything from the beginning. In fact the absence of discussion at management meetings has produced an effect of unstructured interactions, which can make the engagement look like "an answer looking for a problem". By giving attention during the early discussions to those features which are important to preserving and enhancing coherence better decisions can be made about who should get involved and when.

The most frustrating part of the application of complexity theory to policy for most public servants is the inability to presume the outcome of proposed interventions. This is not a trivial hurdle as fixing the expected outcome is often seen as essential to the planning process and is the dominant focus of evaluations central to government transparency. Transparency and accountability can be maintained using an emerging class of evaluation techniques (a subject of such importance that it will be treated more fully in a separate brief) if the policy process includes a sufficient discussion of what would constitute requisite impact. The conditions for continuing and expanding, or curtailing what will be essentially experiments in an intervention strategy are critical during the early phase of discussions. Experiments in this context are just that and the conditions for ceasing an experiment need to be explicit as do the conditions for augmenting one. It is likely that many of these impact measures will become evident through the analysis of the research used in the early phase investigation. A decision to engage in continuous capture of key impact data will be critical and should not be left till after implementation.

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