"Don't just do something, stand there!"

Revisiting the Issue of
Risks in Innovation in the Public Sector

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Abstract

Governments around the world have been exhorted to be more innovative not only in service delivery, but also in all facets of policy formulation and development. Wanting to be innovative, however, implies risk-taking. This latter concept has been discussed fairly widely in the literature but as applied to innovation in the public sector there are still gaps in the body of knowledge that practitioners continue to find vexing. This paper argues that while the notion of risk has been well discussed in and of itself, its juxtaposition with innovation in a public sector context still needs further rigorous research. In this regard, and drawing from some cross-jurisdictional experiences, the paper puts forward some ideas that could be further considered and researched. These include: (a) how do various concepts associated with risks play out as public sector organizations make decisions to innovate; and (b) what motivates them to tolerate specified levels of risks, i.e., what is their risk appetite for innovation?

Introduction

With the rapid rise of New Public Management (NPM), the focus in public sector governance has shifted towards public bureaucracies being given latitude – or at least exhorted – to be innovative. This is a far cry from the days when bureaucracies were maligned for what was perceived to be their lack of innovativeness (Kaufman, 1981). This issue continues to be at the core of what public sectors in advanced OECD countries are tackling at the moment. This paper focuses on one particular aspect of this issue – that of risks and how they can be viewed in innovation in public sector governance. It starts with the *a priori* premise that risk and innovation are complementary concepts and that it makes little sense to discuss one without the other.

Why the focus on the public sector? This is simply because the environment of the public sector is, in general, more complex than that of the private sector. This is largely because – while like in the private sector, public sector organizations continually face new pressures to adapt and innovate – it has ill-structured and 'wicked' problems (Churchman, 1967). The practice of risk management in the public sector is also more complex because of the fact that even as decisions are made under conditions of uncertainty, they still require a political judgment. To operate, manage, and innovate

[1] The author is Senior Advisor (Public Management) at the State Services Commission, Wellington. He would like to thank Viv Wynne, Peter Martin, and Pete Rodger for helpful comments on an earlier draft; and Jos Goebbles (at the VWA office in The Hague) for material on the application of 'visible risk reduction' in a government agency. Thanks also to Stu Conger for encouraging me to complete the paper. The views expressed here are the author's own and do not represent those of the Commission.

in this environment then is rather difficult, which invariably, it could be argued, leads to an attitude of aversion to risk.[2]

Why the focus on risks and innovation? This is because given the rapidly changing environment within which public sectors need to operate; the need to be innovative has become a key driver of public management systems. However, innovation implies risk-taking and traditionally risk-taking in public sectors has meant that risks are managed by avoiding them. This is largely because the public sector tends not to diversify risks. Public sector organizations – unlike private firms – also cannot net out successes and failures. Firms, for example, can sustain several failures that shareholders can accept as long as one success yields on an average a positive rate of return. Public sector organizations rarely have the luxury of living with several failures regardless of how many policy successes they may have. This obviously has an impact on the decision domain to innovate. Yet, the risk-related decision rule in both sectors is the same: *minimize the cost of uncertainty*.[3] This minimization function is built into the risk management practices generally in organizations. All risks can be dealt with in any one (or combination) of these ways: hedged, transferred, averted, or internalized; regardless of how they are dealt with, a deeper understanding of risks vis-à-vis innovation is contingent upon an understanding of their conceptual bases.

The purpose of the paper is to assess the nature of risks in the public sector, including factors that impact the degree of risk tolerance and risk appetites, and ascertain how the decision parameters on innovation shift for organizations as their tolerance and appetite for risks shift. While everyone has a high degree of what economists term 'risk ambiguity aversion', it is generally accepted that the public sector is more risk averse. This minimizes the appetite for taking risks that inevitably impacts the level of innovation attempted. On the flip side, the decision regret in the public sector is also high since all too often, suitable opportunities to provide better services are not taken advantage of because of this tendency to be risk averse. In a survey carried out by the UK National Audit Office in 2000, six in ten government organizations alluded to the risk of missing an opportunity to improve the delivery of their objectives (National Audit Office, 2000, p. 5).

The analytical framework of the paper rests on the following meta concepts: rational choice (since all parties to the process are more intent upon maximizing their own utility), knowledge generation and organization network (since knowledge generation and capture to facilitate the innovation is a product of networks rather than organizations going it solo), and environmentalism (for as with private sector firms, public sector organizations also rely on environmental scanning to determine the parameters of their innovation domain). The paper is written primarily from the

[2] The environment in the public sector also has other manifestations of complexity – such as diversity (depth, breadth) of stakeholders, horizon (discrete/ongoing, e.g., generational/intergenerational concerns), managing in a 'fishbowl', dynamics of owner/provider mix, etc. Some of these make the operations more complex, others change the objective function and constraints under which the government wants to optimize. Yet another approach to looking at this complexity could be to focus on the agency problem around managerial discretion (largely because innovation in the sense of introducing new ways of doing things is an example of such discretion). A proposition could be made that agency problems around managerial discretion are greater and different in the public sector than in the private sector and that the typical sectoral solutions to these agency problems reflect the different appetites for risk. Depending upon the presence or absence of competition, there is then a given influence on the resolution of the agency problem around discretion and thus, by extension, on innovation. I am grateful to Viv Wynne and Pete Rodger respectively for these two observations.

[3] This assertion, I argue, is only with respect to risk-related decision rules. In general, however, decisions in both the sectors are driven by a maximization rule – try to maximise the risk-adjusted expected 'net return' from one's actions.

perspectives of a practitioner in public management and governance and juxtaposes the practical experiences with the analytical work done on risks and innovation as evident in the appropriate risk literature. The paper first revisits the basic concepts of risk by way of setting the stage to talk of innovation in the public sector. It then draws implications of this discussion on innovation and concludes by highlighting several areas where practitioners continue to grapple with a knowledge gap on how risk management and innovation could be more rigorously structured and studied.

A Brief Review of the Concepts

Risk

For purposes of the paper, risk may be defined simply as the uncertainty of outcome. The element of uncertainty is the central dimension in the study of risks and occupies considerable space in the literature. Risks are also viewed in relation to time (and, therefore, irreversibility); this notion of irreversibility characterizes risk management practices that dominate organizational decision making. Typical risks which government departments face include anything that jeopardizes the proper fulfillment of their mandates; anything that damages their reputations (and, therefore, have an adverse impact on the minister and consequently government, also termed political risks); failure to guard against impropriety; compliance failure with, for example, work safety regulations; failure to contain costs in operations; and an inability to respond to changed circumstances that adversely impact their ability to provide services effectively. More broadly, public risks are categorized either as strategic risks (i.e., representing the fundamentals; also called 'policy risks') or trading risks (i.e., day to day or operational fluctuations) (Scott, 1999). Reputational risks for public organizations can fall either on a particular organization or on the public sector as a whole – although public perception is generally such that the two are considered closely linked and the public by and large indeed does not make any fine distinctions. It is relevant to point out here that there is no necessary relationship between economic risk and political risk (politicians can invoke sub-optimal economic decisions for many years without incurring political costs); and on balance, the incentives on politicians are to be risk averse in a policy sense even if this means adhering to sub-optimal economic policies (Duncan, 1999, p. 75).

Uncertainty and Information Asymmetry

Clearly, most risks stem from uncertainty, and the future poses risks because it is largely uncertain although "uncertainty is by no means the product of futurity alone" (Mack, 1971, p. 68). Uncertainty, in turn, stems from a lack of information across time, from information asymmetry across space, and in its static state, in perception and interpretation as well (see, e.g., Stiglitz, 2002). What this means is that while organization A which knows less than organization B bears a greater risk potential (the 'space' asymmetry), both A and B bear a greater degree of risk tomorrow instead of now since they cannot know – with any degree of rigor – what lies ahead (the 'time' asymmetry). This further alludes to the *a priori* assumption that different organizations have different levels of information access but even while the facts remain the same, there are different interpretations even by all rational people (Bernstein, 1996, p. 111).

All organizations – whether public or private – face information environments with accuracy ranging from precise information to speculation. The former allows rational decision making, which means that organizations can optimize and plan their actions to maximize expected rewards from their actions. The latter, in turn, centers on probability and probabilistic utility. But whether

precise or speculative, organizations need to be aware of the 'signal to noise ratio' (Yeabsley and Sundakov, 1999, p. 3), which alludes to the intricacies of the decision-making processes of firms and organizations where decision makers need to be able to filter out the irrelevant and unnecessary information that is invariably present in any decision-making scenario. A large part of what an organization decides in the face of a given situation is contingent upon how well decision makers in the organization are able to read the right cues and disregard the irrelevant information floating around.

It is this concept of probabilistic utility that sets the scene for an analysis of risk severity by looking at the likelihood of occurrence of risks and the impact that such a likelihood is likely to have. This duality, i.e., likelihood and impact, constitutes the staple of risk analysis to date and stems largely from the view that "uncertainty concerning how to extrapolate from the empirically measured evaluation outcomes to the outcomes of interest dwarfs uncertainty concerning the magnitude of the measured effects" (Caulkins, 2002, p. 488).

While firms and organizations then both face uncertainty that is information-asymmetrical across time, space and interpretation, some organizations are able to better manage risks and uncertainty (and consequently be more confident of engaging in innovative activities). Related to this is the fact that any expected utility in the future has to be discounted at the present. The term "uncertainty discount" is used to explain the decrease in utility in the future. Excessive levels of uncertainty discounts clearly point to excessive risk aversion on the part of decision makers. The corollary of uncertainty discounts is "certainty equivalence" which is derived from the Swiss mathematician Bernoulli's fundamental principle of an inverse relationship between the utility of increases in a variable and the amount of that variable already possessed. Bernoulli's principle, however, was refined by Kahneman and Tversky (1979) who argued that the valuation of a risky opportunity appears to depend far more on the reference point from which the possible gain or loss will occur than on the final value of the assets that would result. Thus, manipulate the reference point and the preferences can be manipulated. This has important implications on how the certainty equivalents (and hence, desire/drive to innovate) of a generally "risk averse" public sector can be manipulated.

Rationality

The principle of rational behaviour is central to the study of risks. Rationality assumes that people always understand their preferences clearly, know which alternatives are available, know how to act on this information, and then apply decision criteria consistently. However, because of bounded rationality (Simon, 1947: 39-41), it is not always possible to have all the information, and even if so, it is not always possible to use all the information that one has. This juxtaposition (of limited rationality to information asymmetry) leads to what is known as a "failure of invariance".[4]

Note that rationality does not mean that there has to be perfect information; people make choices on the basis of the information they have and can rationally acquire; it is just that this is applied inconsistently, and in an incremental fashion (over time, this yields a situation of disjointed

[4] The term refers to "inconsistent (not necessarily incorrect) choices when the same problem appears in different frames" (Bernstein, 1996, p. 275). According to the failure of invariance, if option A is preferred to option B and option B is preferred to option C, rational people will choose option A over option C. When this does not happen, failure of invariance occurs. It has to be noted here, however, that such a failure is not necessarily irrational. The author thanks an anonymous reviewer for pointing this out.

incrementalism, the bane of all strategic planning exercises). Incrementalism, in turn, results because of the presence of seriability, which enables organizations to deal with problems in whole or in parts as sub-components of a series.

Bounded rationality is an extremely useful concept in studying risks. It takes us away from the often restrictive straitjacket of rationality and perfect information. While on the face of it bounded rationality appears sub-optimising, Lipman (2002) asserts that it is not necessarily true that a theory of bounded rationality cannot involve any optimization. Lipman does say though that because of bounded rationality, organizations tend to end up using "fast and frugal heuristics" (p. 927) – because of boundedness, decision makers make quick decisions based on available information and they are frugal because they do not require a great deal of information. More often than not, organizations do not get the luxury of doing anything more. But because much happens within the context of bounded rationality, incrementalism is the norm in public sector organizations. This yields the problem of creeping risk, which refers to a progression of adverse consequences that is so gradual, yet persistent, that people get used to it.

Risk ambiguity aversion and risk aversion

Risk ambiguity aversion is a term that denotes that people prefer to take risks on the basis of known rather than unknown probabilities (Ellsberg, 1961). All ambiguity is problematic; for decision domains around innovation, it can be fatal. The critical missing element in this is information (but see the discussion earlier on information asymmetry). Risk aversion, on the other hand, has as its essence the question: "how are we willing to go on making decisions that may provoke others to make decisions that will have adverse consequences for us?" (Bernstein, 1996, p. 239). As reflected in the management approaches of government departments, this aversion is partly because "departments have tended to associate risk taking with increasing the possibility of something going wrong…" (National Audit Office, 2000, p. 2).

Also, the presence of information asymmetry and bounded rationality in organizations means that there is preponderance of evidence in the public sector of a "bias towards playing safe" (Mack, 1971, p. 130). Mack ties this down to the phenomenon of sub-optimising (p. 69) and a conservative bias of management (p. 126) that she says results from the tendency of individuals (and surely organizations as well) to reduce the scope and framework of a problem so that it is more manageable. It is largely through playing safe that public sector bureaucracies engage in incremental pluralistic policy formation that enables the policies to move forward but only marginally at a time. A large part of this is wariness on the part of public officials of the "howl meter" (Mack, 1971, p. 127). As Mack observes: "The bias towards playing safe has its sharpest impact in encouraging the selection of the alternative that consists of doing nothing... the uncertainty-discounted expected advantage of standing pat will tend to be elevated, other things the same, ... than that of alternatives" (pp. 130-131).

Implications for Innovation

So what does all this mean for innovation? For starters, it would be useful to look at the different dimensions in which risks and innovation could play out. First, we would need to look at an organization's ego network (Ahuja, 2000) to ascertain the characteristics that it possesses that would determine its risk appetite, level of risk tolerance, and subsequent innovation output. An organization's ego network has three aspects: direct ties, indirect ties and what are known as

structural holes (Burt, 1992). Ahuja hypothesizes that direct and indirect ties have a positive impact on innovation (i.e., the greater the direct and indirect ties the greater the degree of innovation). The structural holes are disconnections between an organization's partners and result from gaps in information flows between them. This impacts the process of innovation since the information gaps tend to have the effect of dissuading organizations to adopt innovative practices evident elsewhere.

Different jurisdictions are increasingly beginning to take a more proactive approach to managing risks in the context of a drive towards facilitating greater innovation in public sector management and governance. In Germany and Austria, for example, the adoption of 'experimentation clause' and 'flexibility clause' to supplement an agency's guidance for risk management has meant that they are more willing to engage in innovative activities. In the UK, the Modernising Programme has placed considerable emphasis on the public sector being innovative. In the US, the Government Performance and Review Act has for some time now given public sector managers more leeway to use opportunities as they see fit. In the Netherlands, agencies such as the Food and Non-Food Authority (VWA in Dutch) engage in what is known as 'visible risk reduction' so as to ensure that consumers can see a transparent and demonstrable effort to raise food safety levels (VWA, 2002). And in Canada, the federal government has put in place an Integrated Risk Management Framework (IRMF) to enable government departments to analyse and manage all types of risks in an integrated and coordinated way (Treasury Board of Canada Secretariat, 1999). The IRMF also allows departments that have core mandates that focus directly on public health and safety to be very proactive in practising systematic risk management.

A risk in innovation is that organizations attempting it could lose legitimacy. "Since they do not know whether they will set in motion a process leading to institutional isomorphism or whether they will set in motion a process leading to loss of their own legitimacy, they face the challenge of maintaining their legitimacy while embarking on a course that threatens it" (Arndt and Bigelow, 2000, p. 495). But it is obvious that the corollary of minimization of risks is ability to foster innovation as well. The IRMF allow this duality to be evident to policy makers and those in the public sector so that they do capitalize on opportunities when they present themselves.

Such capitalization of opportunities has deep implications for knowledge generation in organizations that are bold enough to look for such opportunities. As part of the knowledge generation process, organizations tend to be involved in either active search (or probe) or passive scanning. In an active search organizations probe around for information and knowledge that will help them determine how best to tackle problems, and in passive scanning the organizations merely do a perfunctory search to confirm existing knowledge that they already possess. Both these processes are part of environmental scanning (Greve and Taylor, 2000).

Once the knowledge is embedded in an organization, through processes of diffusion, any innovative impetus is apt to be initiated by others. In this regard, it is also important to assess the degree of both the first-order and second-order imitation of innovations in other organizations. In first-order imitation, organizations imitate specific policies of others or "the act of imitating the content of a particular policy decision, such as level of spending on R&D" (Westphal, Seidel, and Stewart, 2001, p. 717); and in second-order imitation, there is a possibility that institutional isomorphism will result (see Arndt and Bigelow, 2000, p. 495). These concepts are tied to those of: (a) mimetic adoption, i.e., a process by which organizations adopt the innovations already tried

out in other organizations, considered to be a limited form of organizational learning as organizations that mimetically adopt are not themselves experimenting and searching (Greve and Taylor, 2000, p. 57); (b) nonmimetic adoption, i.e., organizations have gone through that process of experimenting for themselves; (c) mimetic isomorphism, i.e., "the process of an organization modeling itself after organizations perceived to be legitimate or successful as a response to uncertainty" (Greve and Taylor, 2000: 73); and (d) nonmimetic isomorphism, i.e., a process whereby an organization comes up with a new routine or process by experimenting for itself.

Areas for Further Inquiry

One way of handling risks better in the public sector would be to ensure that each agency is given the flexibility to design its own risk-taking threshold. The Dutch VWA is a good example of this (see VWA, 2002). And for this, there is need to accept that organizations need to take the right risks and the right amount of risks compared to their own risk tolerance (or appetite) and benchmarked against others, if possible. Each organization's appetite or tolerance for risks is unique and will vary according to any one (or combination) of several variables but may be conceived of as in: the extent of its legal mandate including any fuzzy boundaries around it; the intractability of the problem it is dealing with; the strategy(ies) it pursues to meet the mandate; its degree of access to relevant information; its organizational culture; the management style of its leaders (although it could be argued that over time, this will tend to settle at a level that is determined by the organizational culture rather than the leaders' styles); the responsible minister's own risk appetite; and the organization's age.[5]

Notationally, this could be framed as:
Departmental Risk Appetite $\mathbf{\{RA_d = f(M1, M2, S, I_a, OC, MS, MRA_{t-1}, OA, e\}}$ where M1 is organizational mandate, **M2** is degree of problem intractability, **S** is strategy, $\mathbf{I_a}$ is degree of access to relevant information, **OC** is organizational culture, MS is manager's style, $\mathbf{MRA_{t-1}}$ is minister's risk appetite (which itself is also a function of the collective risk appetite of government, and of the perception of severity of risk but lagged because it generally takes time to diffuse to departmental level), **OA** is age of organization, and e is the error term.

Note this functional set is merely illustrative; in reality, the causality is expected to be much more dynamic. Note also that the proper form of the equation is indeterminate at the moment and may be different given the very real probability of autocorrelation among several independent variables. But what this does allude to is the fact that the risk appetite of public sector organizations is a much more complex concept than merely stating that public sectors around the world are risk averse because of the way they function. The story is much richer than that but how

[5] The age of the organization is factored into the function set because of concepts derived from organizational aging (such as liabilities of newness, adolescence, and obsolescence). The concept of liability of adolescence suggests that "organizations can survive for a time with risk of failure because they can draw on the initial stock of assets they typically acquire at founding" (Henderson, 1999, p. 281; see also Baum, 1989). On the other hand, liability of newness means that younger organizations – by virtue of their newness and, therefore, lack of sufficient organizational knowledge and learning – are generally hesitant to try anything innovative in their routines unless they adopt an innovation from somewhere else (Stinchcombe, 1965). The concept of liability of obsolescence means that "firms are highly inertial and tend to become increasingly misaligned with their environments" (Henderson, 1999, p. 281); therefore, failure rates tend to increase with age.

exactly it should be structured (modeled) for purposes of further rigorous analysis is not something that is extensively written about. This knowledge gap continues to vex practitioners in public sector management.

To further the argument, we could hypothesize causal relationships between the dependent variable (departmental risk appetite) and the independent variables as such – *in general, and everything else being equal:*

1. The greater the fuzziness in an organizational mandate, the lower the risk appetite;
2. The greater the intractability of the problem the organization is dealing with, the lower the risk appetite;
3. The more aggressive the organizational strategy to meet its mandate, the greater the risk appetite;
4. The greater the degree of organisational access to relevant information, the greater the appetite for risk;
5. The more stable an organization's behaviour and culture, the greater the appetite for risks;
6. The more aggressive the managers' style, the greater the risk appetite;
7. The greater the responsible minister's risk appetite, the greater the risk appetite of the organization as well;
8. The greater the age of the organization, the less the risk appetite.

There could be several more testable hypotheses depending upon how one frames the function set. This clearly merits further inquiry so that practitioners in the public sector may be able to better contextualise innovation with respect to the risk environment they operate in.

At this point, it is relevant to note that given the increasing expectations that the public has on what the public sector should deliver, and as internal organizational processes mature to self-sustaining levels, the traditional focus that organizations have towards risk management may have to shift from risk mitigation (i.e., "using controls to limit exposure to problems") to risk portfolio optimization (i.e., "determining the organization's risk appetite and capacity among a group of risks across the enterprise, seizing opportunities within those defined parameters, and capitalising on the rewards that result" KPMG, 2001, p. 5).

A large chunk of what constitutes innovation centers around the generation – and transmission – of knowledge. Innovation suffers when the knowledge that an organization has amassed (either from its own practice or collated from elsewhere) is not able to be carried forward. There is thus a knowledge gap which if not addressed rigorously leads to strategic vulnerability (see, for example, Hall and Andriani, 2002).

Where this gap is to be bridged with substitutive knowledge (i.e., a new type of knowledge or paradigm) the risks of organizational failure are greater than where the gap is to be bridged through additive knowledge (i.e., the same old knowledge or paradigm and merely moving along it). This clearly implies that organizations that have had to face situations where they have had to generate new knowledge have tended to have had higher risks than those organizations that have had the luxury of merely moving along a particular paradigm.[6] This is in itself nothing new but it

[6] The clear assumption here is that the variable organizational inertia (Hannan and Freeman, 1984) is deemed to be kept out of the equation.

does provide a frame for organizations as they begin to question their strategies to enhance knowledge – and, therefore, innovation – in fulfilling their legal mandates in an efficient and effective manner.

It is important that policy makers be aware of the need to politically manage risk issues (in addition to the usual concerns of scientific and technical details of risk (see Briggs, 2002, p. 259). The appeal of the VWA's approach to risk management stems implicitly from this acceptance (see VWA, 2002, p. 25). It is also important that even as risk appetites vary, as do perceptions of the severity of specific risks, a uniform system of risk assessment needs to be adhered to so that all parties share similar perceptions of actual or potential risks. That would be a first constructive step towards a proper view of risk and its impact on innovation in public sector management and governance.

Finally, to conclude, it needs to be said that there continues to exist a substantial knowledge gap in how various issues of risks (such as those on risk aversion and risk appetite) can be modeled with respect to innovation in the public sector with the government department as a unit of analysis. In that regard, the point can be made that there should be more focus put on pausing and reflecting on these issues than on continuing to proceed with ideas and assertions that are still not fully and rigorously developed and tested. Those that practise risk in a public sector environment on a daily basis would like nothing more.

About The Author:

Gambhir Bhatta is currently Senior Advisor (Public Management) at the State Services Commission, New Zealand, which along with the Treasury and the Department of Prime Minister and Cabinet constitutes the suite of central agencies in the New Zealand Public Service. Prior to joining the SSC, Gambhir was Assistant Professor at National University of Singapore where he taught modules in Public Administration and Management. He has also been associated with UNDP (in Uganda, Uzbekistan, and Nepal), Singapore Institute of Management, International Management Development Institute (Pittsburgh, USA), Department of City Planning (Pittsburgh), and the School of Business (Open Polytechnic of New Zealand), among others.

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Gambhir's areas of professional expertise are in public policy analysis, public sector management, tertiary education, governance and capacity building, management training, organisational design, and programme/project design and management. He lives in Wellington, New Zealand.

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