

**Proposal for Research on the Fate of
Innovative Public Sector Organizations,
Populations and Communities:
Research Synthesis and Prospectus**

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ABSTRACT

The impact of innovation on organizational survival is not known, despite organizational survival being the basic measure of organizational success (Wischnevsky and Damanpour (2008: 62). Working from Glor's (2014a, b) framework for identifying the impacts of innovation on public sector organizations (PSO), this paper proposes an approach to studying the effect of innovations on their PSO that could be used for comparative research. A structural approach is proposed, focused on the impact of innovation on organizational mortality rates and the demographics of innovative organizations, organizational populations and organizational communities. The paper identifies the elements necessary to both the research proposal and the proposed demographic research approach.

Key words: Impact of public sector innovation, innovative organization, innovative public sector population, organizational demography.

“Natural selection works at the individual level and is not necessarily good for the survival of the population. Things can and do get selected that are bad for the population.” Quirks and Quarks, CBC Radio (Canada), October 6, 2012

Introduction

Despite the promotion of innovation in the public sector (PSE) for two generations, the impacts of innovation have still rarely been addressed. Impacts are defined as downstream results or outcomes of innovations. In the few studies of impact, the focus has tended to be impacts on organizational functions (Damanpour is prominent in this work) and successful case studies,² rather than impacts on organizational objectives, people, structures and survival. Because organizational survival is the basic measure of organizational success (Wischnevsky and Damanpour, 2008: 62), the effect of innovation (defined on page 9) on organizational survival needs to be assessed. Whether innovation is good or bad for the survival of organizations has not been determined, especially in the longer term. An exception is a pilot study done on five innovations, to determine if survival data could be collected after a long time (32 to 43 years) had elapsed (Glor and Ewart, 2015). The pilot authors were able to collect the needed information.

¹ This paper was originally presented to the annual conference of the International Research Society for Public Management, April 9-11, 2014, Ottawa, Canada as Glor, 2014(a). Thank you to three anonymous reviewers for another journal for helpful comments. This paper is somewhat duplicative of Glor (2014b), but we wanted to explore separately what was implied in doing demographic research on innovative organizations and populations.

² Sanford Borins and the Harvard School of innovation scholars and their focus on case studies have been prominent here; *The Innovation Journal: The Public Sector Innovation Journal* has published numerous case studies, as have others.

This paper proposes study of the mortality rate of innovative organizations, populations and communities and their comparison to each other and to normal or non-innovative ones.³ The mortality rates of normal organizations have been studied (integrated by Baum, 1996; Glor, 2011, 2013). The logic is that innovation is an adaptation mechanism that reduces organizational mortality (March, 1991; Nohria and Gulati, 1996; Damanpour and Gopalakrishnan, 1999) and thus affects innovative population demographics. This structural perspective considers innovations as an important source of adaptation: organizations must adapt to survive and organizations that do not adapt do not survive.

The key survival factor is not likely to be whether the organization invented the innovation (Damanpour and Wischnevsky, 2006) unless the organization is in the business of inventing innovation. Being in the business of inventing innovations is rare in the PSE except in research councils and innovative governments. Some key survival factors are more likely to be whether the objective has popular support, who promoted and initiated the innovation, organizational innovativeness, whether an organization fully implemented the innovation(s), whether the implemented innovation achieved the intended results, how much impact it had on the issue, and whether the objective and the impact could be effectively communicated to the public or some portion thereof (e.g. political party membership or a pressure group). Implementation is likely more difficult for innovators and early adopters (Rogers, 2010) but only full implementation can plausibly link the innovation and the organization's structural survival. Only if they achieve the intended results can whether innovations helped organizations survive be tested. At the same time, organizational fate is a short, medium and long-term issue. While organizations implementing innovations that do not achieve their objectives or that are communicated but not implemented may survive in the short term, they are not likely to survive in the medium or long term.

Glor (2014a, b) developed a framework for assessing the impact of innovation four ways—impacts on organizational case studies, people, functions and structures. This paper develops more deeply and makes a proposal for a research program taking a structural (demographic) approach to assessing the effect of innovation on its organizational, organizational population and organizational community survival. This is a *structuralist* approach in Burrell and Morgan's (1979) and Gioia and Pitre's (1990) organizational paradigms. It will be called *structural* in this paper. A structural approach focuses on organizational structure, hence organizational demographics is a suitable methodology. As do Rogers et al. (2005) and Hollingsworth (2000), Glor focuses on the organizational determinants of innovation diffusion and adoption, in a systemic approach to the analysis of innovation that emphasizes its role in and among public institutions.

Innovation as a Factor in Organizational Mortality

Although being innovative and introducing innovations is a/the key factor to organizational survival in some situations, in other situations it is not. For example, during the late 1970s, a Canadian province's workers' compensation scheme was at risk of employers withdrawing from it because of high cost. The Saskatchewan government introduced a change to its Workers Compensation Act that reduced costs for employers by making workers eligible for welfare before workers compensation

³ Normal organizations create a few innovations, normal populations include a few innovative organizations, and normal organizational communities include a few innovative organizations but none includes many. Innovative organizations, populations and communities create many innovations (see Glor, 2015b).

and removing lifetime pensions for spouses who could work (Harding, 1995). This innovation was adopted by all Canadian provinces and continues today, as does the organization. The innovation was the key element in the survival of the organization. The same government introduced Canada's first subsidy for poor working families with children in 1974. A subsequent government replaced the program and the organization with new ones in 1998. The innovation was a key element in the mortality of the organization. The same government introduced Canada's first provincial income supplement for poor seniors. In 1988 the program was transferred to a new department, and its organization disappeared. In this case, the survival of the innovation was not a key factor in the mortality of the organization.

Innovations should help organizations achieve their objectives and organizations that achieve their objectives should survive, but again this only occurs under certain circumstances, such as, while the organizations' objectives and the innovations' initiators remain constant, the objective is not to abolish government organizations and functions, the niche is expanding, and the dominant political ideology remains the same. Researchers should assess what happens when these factors change.

Currently, the objective of private and non-profit sector organizations is to grow but the objective of most public sector organizations is to shrink: The niche is shrinking. Organizations and their niches are thus unlikely to grow, public innovations may be unlikely to continue even if the objectives are being met or the objective of the innovation is to help the organization to shrink, both because the animator of the innovation may be temporary and because a successful innovation could also be temporary. Once organizations have changed, they are more likely to change again and are easier to terminate (Singh and Tucker, 1986a). Organizational downsizing has been a major objective of most public sector innovations for two generations. It is therefore important to research innovations deriving from political environments where it was acceptable for public sector organizations and their niches to grow. A comparison of the current environment with those environments would be valuable in helping to understand the impact of innovations on their organizations' survival.

While innovation may be a factor in the fate of organizations under some conditions, a number of other factors have been shown or predicted also to be related to organizational fate, such as the organization's design, age, resources and the government's ideology about the role of the PSE. In the private sector, some research has shown that organization-level innovation failures may translate into sectoral or market-level ones, that certain types of project are prone to morbidity or outright failure, and that internal absorptive capacity for innovation and corresponding resource endowments are minimum requirements for sustained innovation.

Studying the United States (USA) federal government, the literature focused initially on the *hypothesis* that PSO were *nearly immortal* (Kaufman, 1976). This assertion was later disproven (Lewis, 2002; Carpenter and Lewis, 2004; Peters and Hogwood, 1998). Lewis (2002) then hypothesized that survival of PSO could be a function of *institutional design*. Boin, Kuipers and Steenbergen (2010) studied whether design factors influenced the survival of New Deal organizations in the USA, considering such structural factors as political insulation, a specific organizational structure, and statutory recognition. Finding that design factors mattered, they also found that the effects changed over time, so that a factor that correlated positively with survival initially correlated negatively over time and vice versa.

Age has been recognized as a factor correlated to long survival, but of course it and the just-cited structural factors are not independent; for instance, researchers found a liability in the transitional stage of organizational adolescence (Freeman, Carroll and Hannan, 1983; Singh, House, and Tucker, 1986b; Carroll and Huo, 1988; Brüderl and Schüssler, 1990). Large *resource endowments* have been found to correlate with innovations (Baum, 1996; Glor, 1998). Research on the impact of *ideology* on organizational survival has not been published, although the survival of organizations under Republican and Democratic governments in the USA has been considered (Lewis, 2002). The effects of innovation and other factors need to be distinguished. This is not easy, as much of the discussion occurs behind closed doors, and is subject to Cabinet confidentiality.

Innovation failure, centralization/decentralization and certain types of projects have been found to lead to disappearance of innovations. In a cross-national empirical study of African innovation in microfinance, Fafchamps and Quinn (2014) found that organization-level innovation failures may translate into sectoral or market-level ones, when diffusion of innovations is hampered by the lack of supports, along with authority/control failures. It is sometimes argued that in developing-country contexts, centralized systems may be better positioned to prompt pro-innovation organizational change, depending on both department- and domain-level circumstances, when in other, comparative, contexts, centralization is most often associated with intractability in this regard (Turk, 1970). A counterargument may be made, however, that decentralized networks advance public sector innovation and may better serve to strengthen democracy by bringing organizational principals and stakeholders together in common initiatives and in innovation-adoption networks wherein best practices established by developed nations may be incorporated (Sørensen, 2010; O'Toole and Meier, 1999).

Certain types of project in organizations in the private sector, for instance in information technology (IT), are prone to morbidity or outright failure (Kaplan, 2015), again, as with microfinance organizations, irrespective of innovativeness: many failed IT projects are in fact highly innovative, or potentially innovative. Resource dependence (former case) and context complexity or diversity (latter case, with highly mutable IT markets) may make for organizational, programmatic, or project failure. To the extent that even innovative public sector organizations are marked by high resource dependence and/or environmental/contextual turbulence, they may be or become prone to failure (morbidity) in spite of innovativeness. In fact, if innovation is expensive, or if it exposes the organization to technological, market, political, or other serious challenges, organizational failure may become more likely *because* of innovation.

With PSOs, as with these nongovernmental examples, internal absorptive capacity for innovation and corresponding resource endowments are minimum requirements for sustained innovation (Cohen and Levinthal, 1990). Organizational flexibility is key to both generating and assimilating innovation (Gitell, 1967), as is a relatively low level of formalization (as to rules and procedures, Aiken and Hage, 1970). Phonkaew (2001) argues that business managers can deliberately manipulate these factors, minimizing any ill-fit among environmental, structural, and strategy determinants of innovation, so that “managers can adjust their organization structure and strategy to fit the environment” (p. 24), for instance through interlinked organizational development and resource acquisition strategies.

There is another way to explore this issue than through the study of the impact of individual factors; namely, through the correlation of innovations with the mortality of their organizations, a

demographic approach. If innovation correlates positively with lower organizational mortality, this would be evidence for the positive impact of innovation on organizations. In the literature, innovation has *primarily* been identified as adaptive (and as a selection mechanism) (Beer and Nohria, 2000). As Wischnevsky and Damanpour (2008: 62) said, however, "The ultimate performance goal of an organization is to survive". If it is adaptive, innovation should decrease organizational mortality. This correlation has not, however, been demonstrated yet.

While implicit assumptions have been made in the literature concerning the adaptiveness of innovation (Beer and Nohria, 2000), studies of the related concept of impact of change, and several demographic studies of organizations that changed (e.g. Singh, House and Tucker, 1986a; Amburgey, Kelly and Barnett, 1993; Barnett and Carroll, 1995: 225) found a *second*, contradictory survival result: Organizations that *changed* were more likely, not less likely, to disappear, at least in the short and medium term. While innovation is not identical to change, innovation can be considered a type of change. Increased organizational mortality with change has been demonstrated at the structural level in a static equilibrium state (Hawley, 1968) and in changing organizations and environments (Hannan and Freeman, 1977; Freeman and Hannan, 1983). Numerous authors have found factors that correlated with mortality (see later), such as organizational age, size, resources, design, and ecological characteristics. While a few authors discovered increases in mortality in groups and populations of organizations that changed (summarized by Baum, 1996; Glor, 2011, 2013), they did not explore the initial state of the organizations (were some of them already under threat of termination?) nor whether change positively or adversely affected the survival of organizational populations in the long term.

On the other hand, in the management literature, some support for a *third* result from *radical* change has been found. Studying radical strategic and structural change in a sample of large American bank holding companies over 20 years, Wischnevsky and Damanpour (2008: 1) found that neither type of change had a significant effect on firm survival. They posited that "soon after radical structural change organizations may experience a short-term increase in the risk of disbanding" but that "radical strategic change may result in the long-term enhancement of a firm's survival chances" (2008: 76). They used Jick's definition of change as "a planned or unplanned response to pressures and forces" (1993: 1). While there may be long-term survival benefits from change, most change studies have not addressed the success of the change. The studies with objective, output-based evaluations rarely found organizational change was successful, and therefore could not examine whether it positively affected survival (Kuipers et al, 2014: 14). Kuipers et al called for use of the strengths of theoretical approaches: description of the details of the roles and behaviours of those involved and the details of change interventions; and longitudinal studies (2014: 16).

Based on the organizational change literature, four different hypotheses are thus possible concerning the impact of public sector innovation on organizational mortality: (1) Innovation decreases organizational mortality; (2) innovation does not affect organizational mortality; (3) innovation increases organizational mortality short and medium-term; (4) innovation reduces organizational mortality long-term.

The primary role of innovation is to help organizations achieve their objectives. Besides fulfilling objectives, innovations also have indirect and unforeseen effects. The role of innovation in organizational mortality, if there is one, could be an indirect effect: the effect of change could be deliberately to terminate organizations.

While the demography of innovative organizations is not known, the demography of normal organizations has received considerable attention: Glor (2011) summarized the literature and calculated the mortality rates of normal populations (2013). She concluded that normal PSO populations usually have higher mean mortality rates than private sector (PS) and non-profit sector (NPS) populations. Her finding was thus the opposite of Kaufman's (1976) theory of PSO immortality. While innovations have been actively promoted, as has the potential for improved organizational performance and results (Walker, 2005), innovations' impacts on their organizations' mortality has not been determined. This paper outlines an approach for researching the impacts of innovation on the mortality of its organization, population and organizational community. It applies Glor's (2014b) recommendation on how to study the impacts of innovation on organizational mortality, using a structural approach. This approach requires examination of the level(s) at which innovation affects organizations, and study of numerous organizations and populations. Should such studies be accomplished, it would then also be possible to determine whether innovation is good for organizational survival by comparing the demographics of innovative and normal organizations and populations. The impact of an innovation on an organization's community is also important because the community has a role in supporting implementation of innovation and legitimizing it, which in turn supports (or detracts from) the community's survival.

Methodology

Glor (2014a, b) developed a research framework for determining the impact of innovations on their individual cases, employees, organizational functions, and the mortality of the organization, organizational population and organizational community, by applying humanist, interpretive, functionalist and/or structuralist paradigms, respectively (Burrell and Morgan, 1979; Gioia and Pitre, 1990). The framework guides researchers to consider nine issues for a structural approach: each paradigm's definition(s) of innovation, the focus of study, the paradigm most suited to studying the issues of interest to the researcher, patterns being followed by innovators and their organizations, important distinctions that need to be made, the issues and levels of analysis suitable for study within each paradigm, suitable methodologies, measures and research questions that could be explored, and which types of impacts can be studied within each paradigm. The full framework is available in Glor (2014b). Like the Conceptual Framework for General Purpose Financial Reporting by Public Sector Entities (International Federation of Accountants, 2010), the framework was developed to apply across countries and jurisdictions with different political systems, forms of government, institutions, and administrative arrangements, while recognizing the diversity of forms of government, social and cultural traditions, and service delivery mechanisms that exist in the many jurisdictions that may study the impact of innovation. The framework is reproduced for a structural approach in Table 1.

Table 1: Framework for Structural Research on Organizational Mortality

Issues	Structural Approach
Definition of innovation & innovative organization	-An innovation is something new to the population (government) &/or organizational community -An innovative population/ community introduces many innovations
Focus of study	-Innovative organizations, innovative organizational populations/ organizational communities
Structural paradigm most suited to	Understanding innovations' impacts on: -organizational structure -demographics Comparing across systems –governments, countries, organizational communities (Rousseau, 1985) -Longitudinal studies
Levels of analysis	Organization, organizational population & community -Organizational & population environment
Methodology	- Study changes in organizational structure - Study changes in organizational populations, communities -Compare with normal populations
Types of data	Organizational demographic data
Measures	-Organizational founding, changes, length of survival, mortality -Hazard rates & ratios -Mortality rates -Individual innovation adoption ranking -Population & community innovation adoption rankings -Organizational population & community mortality rates
Impacts of innovation on...	Survival/mortality of organizations & organizational populations & communities
Issues which could be studied...	-Innovations' effects on organizations -Innovative organizations -Innovation's/ns' effects on populations -Fate of organizations sponsoring innovations -Fate of innovative organizations

Using Glor's (2014b) structural concept, this paper develops a proposed research program to ascertain the effect of innovation(s) on the survival of organizations, organizational populations and communities. The research program establishes and makes explicit the research approach, concepts to be applied in developing the research program, information that should be collected, how it could be collected and what could be studied.

Research Approach

While interpretive, people, functionalist and structural approaches should all be taken, this paper focuses on the structural approach. This involves demographic study of innovations, innovative organizations,⁴ populations and communities and their normal and non-innovative comparisons. A structural research approach focuses on the demography of innovative organizations. It will be important to compare the demography of innovative populations to both normal populations and non-innovative populations, thus allowing researchers to determine if there are differences. Data is available on a number of normal populations (Glor, 2013 found 21 studies) but data would need to be collected for non-innovative populations, making it more difficult to do.

While survival analysis could be used to identify differences in the history, structure, function, and other factors that are potentially related to the fate of organizations that innovated substantially and organizations that did not innovate much within study populations and across populations, demographic patterns are measured solely by organizational founding and mortality, population rates and age profiles. The demography of normal (and less so changed) organizations and populations was of interest in the organizational, sociological and political science literature during the 1980s and 1990s. As indicated earlier, Glor (2011, 2013) studied this demographic literature, and identified the normal populations by sector (PS, NPS, PSE). This research offers a comparable measure of performance for innovative organizations and populations, especially in the PSE, where more studies have been done.

According to Glor, normal populations are “ones that include a full population (preferably) or close to it or are representative of a full population and are therefore suitable for establishing a standard. Ideally, a normal mortality rate is determined by calculating the mean mortality rate of the full population over its full lifespan” (Glor, 2013: 5). Only normal populations were included in her analysis because there were some biased and unrepresentative studies in the published literature. Glor found that in ten PSO population studies from five countries, normal PSO mortality rates were all under a mean of 1.3 per cent per year and normal PSOs (especially in the USA) had higher mortality rates than normal PS and NPS organizations (Glor, 2013).

Demographic analyses thus require complete databases of organizations and populations. Glor (2014a) defined a government as a population but a population could also be all PSE organizations performing a common function. While PSO organizational information is available in government budget estimates, annual reports and other documents, there are no inclusive data bases of PSO *innovations, organizations and populations*. A few surveys can be accessed, e.g. the biannual survey of top management conducted by the ICMA (accessed June 17, 2014 at: <http://icma.org/en/results/home>) but they typically predefine innovations, offer a list of innovations from which to choose, and have low response rates. Such surveys tend to be studies of innovation diffusion not its effects. Newer innovations and innovations not of interest to the survey would not be identified. Researchers need to develop accessible data bases on the development, approval, implementation, effects, feedback, and survival of innovative *organizations* and organizational *populations* and, if possible, *communities* that allow consideration of the demographics of innovative organizations and whether innovation has been adaptive for them. Innovative organizations,

⁴ The term “innovative” describes organizations having implemented many innovations. The numbers/proportion of innovations required to create innovative organizations have not been determined. This is discussed further, below.

populations and communities should be compared to each other.⁵ Matched case studies would be a good place to start.

In a field so little studied as the impact of innovation on organizational mortality, research is needed within each of the research paradigms (Glor, 2014b). Ideally, the research should be conducted sequentially. Some research has already been done within each of the paradigms, except the demography of innovative organizations, populations and communities. Glor and Ewart (2015) have conducted a pilot test of five income security innovations introduced by the Government of Saskatchewan (GoS),⁶ to see whether the founding and mortality of the innovations and organizations could be traced. They could.

There are methodological challenges assessing how PSE innovations affect their organizations and populations, such as: (1) challenges comparing governments; (2) lack of innovation and population databases; (3) challenges determining whether the survival/mortality of organizations can be attributed to their innovations and, eventually, to what extent; and (4) challenges identifying changes in programs and new organizations. The first two challenges can only be dealt with over time as researchers develop more interest in these questions and secure cooperation from governments to collect and retain data. The other two are discussed briefly here.

Attributing survival of organizations to their innovations involves studying innovations that are substantial enough to affect their organizations and understanding sufficiently the internal workings of the government and the motivations of elected and appointed decision-makers and employees to be able to draw the link. Innovations that have a one-to-one relationship with their organizations would not be appropriate for study here, but rather organizations that administer several programs or administrative functions and the organizations above them.⁷ *Challenges identifying changes in programs and new organizations* involve a number of factors. Sometimes programs and organizations maintain very similar names but change fundamentally, for example, in terms of their objectives. This is rare, however, because in most governments a change in mandate requires legislation. If PSO change names or departments, they are usually changing in fundamental ways.

The questions researchers ask relate to dynamics within the organizations and environments and to definitions of innovation used. Data should be collected at the level of, the level above and the level below the structure being studied e.g. when the object of observation is an organization, data should be collected about innovations in the organization and in its sub-units and the fate of its organization and the ones above and below it. Others' propositions (e.g. Damanpour and Gopalakrishnan, 1998: 17, Table 3) could be tested in the research proposed here as well, as could the effect of organizational patterns on organizational survival (Glor, 2001a, b, 2007a, b, 2015a, b).

⁵ Researchers could look for innovative populations when there is a change of government.

⁶ Saskatchewan is the province about which Seymour Martin Lipset wrote *Agrarian Socialism*.

⁷ For example, if an innovation is administered by a fully dedicated division, the focus of fate might be the directorate of which the division is one of several.

Concepts

This section considers definitions and levels of analysis.

Definitions

Agreed-upon definitions and distinctions are essential to comparative structural innovation research. The term “impact” is defined to include *both* the results of the innovation’s intervention and the broader intended and unintended effects of the innovation on itself, its organization, its organizational population and its organizational community. Glor (2014b) explored and identified definitions for innovation, innovative organization, innovative organizational population, and organizational community. The definitions she recommended are used here, and follow.

Innovation is the implementation of something new (an improved, new policy, program or process) to an organization, population (government) (Rogers and Kim, 1985; Glor, 1997: 3-4) or organizational community. This definition can help to produce dated information that is comparable across governments, and the definition can be applied across sectors (PSE, PS, NPS).

Innovative organization. Because large organizations are known to be more innovative than small ones (Hannan and Freeman, 1977; Camison-Zornoza et al, 2004), though possibly only because of their greater resources, control needs to be exercised for size. Innovative organizations can thus be defined three ways: (1) Innovative organizations implement the highest ratio of innovations to programs/processes or proportion of innovative resources to all resources (budgets or number of personnel) in a population. Once “innovative” is determined comparatively, it may be possible to define an innovative organization as one that implements above a certain ratio of innovations or innovative resources to total resources in the population. This definition also has two weaknesses: (a) laggard organizations/governments could be recognized as the most innovative when modernize but they might only be catching up with normal organizations, and (b) standards for innovative numbers and ratios (the definition of “many” follow) cannot be defined until the range of innovations and ratios among innovators, early adopters, early majority, late majority, and laggards (Rogers, 2010) is known in a wide variety of PSO and populations. (2) Studying adoption rank and ratios would thus also be valuable in order to identify adoption rankings within populations and communities: (a) Innovative organizations introduce many innovations/some big innovations early (e.g. first, second or third) in a population, community or among populations;⁸ (b) Innovative organizations rank high (e.g. first, second or third) in terms of the ratio of innovations to resources in a population, community or among populations.⁹

Innovative organizational population. A population (government) is a group of organizations performing a similar function (e.g. a federal/provincial/local government, international organizations). An innovative population is a population composed of many innovative organizations or a population that ranks high in numbers of innovations implemented or one that dedicates a high proportion of resources to innovation. Glor defined an innovative government as “an innovator [first time] or early adopter [among the first governments to introduce] many innovations within a short

⁸ Glor did three such comparisons: the Government of Saskatchewan compared to its community (1997, 2000); governments nominated for the IPAC innovation award—Canadian federal, provincial and municipal governments (1998, 2000); and three Canadian governments (regional, provincial and federal) (2002).

⁹ E.g. Glor (1997, 2000) compared populations within a community of American and Canadian governments.

period of time” (1997:4). Researchers need to discover what a short period of time is and whether it is similar in all populations. In the GoS, for example (Glor, 1997, 2000), it was eleven years, the life of the government: numerically, most of the innovations were introduced in the first eight years (first two mandates), but some of the large, expensive innovations were introduced during the third mandate and were thus affected by a downturn in the economic cycle. In contrast, a *normal organizational population* only introduces innovations sometimes or periodically. An innovative population ranks high (first, second or third) many times in terms of the ratio of number of times it has implemented innovations to total resources or the ratio of innovation resources to total resources in the population. According to Astley (1985: 229-31), most organizational change occurs in the process through which new populations are founded and old ones die, a process which is inherently unpredictable. In government, new departments or other organizations are often established by a new government, especially ones introducing a new ideology or new initiatives. The definitions of innovation used within each of the paradigms are outlined in Table 2.

Table 2: Paradigms and Definitions of Innovation

Organizational Paradigm	Interpretive	Humanist	Functionalist	Structuralist
Definition of Innovation	-Unique to each organization that does it	-Unique to the employees, management, geographic community, country -Contributes to an important national effort e.g. war effort	-Something new to an organization	-Something new to the population (government) &/or organizational community

Organizational and population mortality. As in most other studies (summarized in Glor, 2011, 2013), *organizational mortality* should be treated as the disappearance of the organization from the record. Study of organizational mortality at the population (government) level is demography. In the PS, a population is usually defined as an industry: governments are most similar to generalist industries (Carroll and Hannan, 2000, studying the PS and NPS); Glor, 2001a, b; 2008b, 2014a). While there may be more variety in a government than in a generalist industry, each government is still defined as a population.¹⁰ The group of governments or the group of organizations supporting implementation of an innovation should be identified in the research.

Organizational communities. In the public sector, Glor (2014b) recommends treating organizational communities as “the community of organizations supporting implementation and providing the legitimacy that develops around an innovation or a package of innovations (Astley, 1985; Drazin and Schoonhoven, 1996; Glor, 2014b: 8). This related group of organizations includes NPS and PS organizations, networks and stakeholders supporting creation of a public sector innovation. Organizational communities are treated in a second way as sets of diverse, interacting, internally homogeneous populations that are functionally integrated, emergent systems, gaining some

¹⁰ Consideration was also given to treating government portfolios (groups of related departments e.g. social, economic) as populations, but governments no longer budget by portfolio (the GoC did for a while), and it would be too difficult to assure consistency across studies.

autonomy from their environments over time (Astley, 1985: 224, 234). In a third treatment, the term is used for a related group of governments, for example, all New Democratic Party (NDP) governments in power around the same time (Glor, 1997, 2000). Innovative communities support, benefit from, contribute to, help to conceptualize, fund, implement and legitimize the development, approval and implementation of similar innovations or a group of related innovations and the innovative organizations that implement them (e.g. western countries that adopted the New Public Management (NPM); the governments of the USA and Canada). It may be possible to measure innovative communities by doing a network analysis (Sorensen and Torfing, 2012).

If a community of implementation, support and legitimacy does not develop around innovations, either before or after they are implemented, the innovations and their organizations may not survive. Internal communities affect the pattern of support (Glor, 2001a, b) for innovation that develops internal to the organization and the capacity of the innovation to secure internal resources. External communities include those lobbying for the innovations, other governments and departments that have previously implemented the innovation(s) or support implementation (e.g. implementation of NPM was supported by the Organization for Economic Cooperation and Development [OECD] and the Government of Canada's Treasury Board, a department) or other organizations with a positive attitude toward the innovation (e.g. PS organizations, suppliers).

Using these definitions, innovation can be recognized as leading to or influencing the creation, continuance or disappearance of organizations. Organizations that disappear are usually undergoing major changes in mandate related to independence, structure, personnel, conditions of employment and/or accountabilities. These definitions have the advantage of usually being public and traceable.¹¹ Internal changes that are not reflected in official documents have the disadvantage of being traceable only by word of mouth, making tracking of impacts on structure(s) difficult. Governments also vary in terms of how open they are about what they do (e.g. the Blakeney government in Saskatchewan published its personnel figures in its budgets but the subsequent Devine government did not). Researchers have variable, limited and inconsistent access to information about internal structural changes, thus limiting what can be studied.

Levels of analysis

Drazin and Schoonhoven's (1996) ***organizational classification*** should be used: organizational, sub-organizational (hierarchical and horizontal), population and community levels. The impact of innovation on numbers of employees should also be studied if possible.

Individual Innovations should be studied three ways, as: (1) *Matched case studies*. (2) *Single initiatives* such as organizational reforms, transformations or reorientations but also as groups of incremental, convergent or transformational innovations. (3) *Groups of related innovations*, which could be of several types: administrative or policy/program innovations, innovations of one political type but not of another (see Wischnevsky and Damanpour, 2008: 55-56), political platforms and reform programs (see below).

Organizations exist at a high level (department/ministry) and all the way down the organizational hierarchy to the smallest unit responsible for an innovation and employing people. For

¹¹ This information may be less available than in the past as the move to program-based budgeting has obscured organizational information.

research purposes, however, an organization should appear on the organization chart or in the budget or in other formal records of organizations (e.g. legislation) that are consistently maintained and permit recognition of appearance and disappearance of all the organizations being studied.

Organizational Structure. McKelvey (1994: 315) described organizational form three ways—as function, process and structure. Innovations can affect all three types of form, but to determine organizational survival requires a focus on structure. *Vertical structure* is often denoted in terms of how many levels of organization or management there are between the Minister and the lowest ranking unit. *Horizontal structure* usually relates to function (e.g. education) or structure (e.g. departments, agencies). In large departments, branches will contain a number of related functions, but functions are not always related (e.g. occasionally functions move with a minister). Agencies were created so that organizations could be assigned and be accountable for only one function. Agencies thus make linking innovations and survival easier. A research program on effects of innovation on PSO should distinguish and describe vertical and horizontal structures. Organizations that disappear can also change objective, function or delivery agent. Organizations that change vertical level do not typically disappear.

According to McKelvey and Aldrich (1983:102-3), organizations and populations need to be described according to the scientific method, in sufficient detail that they are classifiable, generalizable, and at a level that allows predictions to be possible. McKelvey and Aldrich investigated organizations in the PS and (sometimes) NPS. To study the PSE involves defining the boundaries of the organization and population and identifying the types of organizations. Researchers should agree on the "boundaries of the state, units of analysis and categorization" (Roness, 2007: 66).

Innovative Organizations. In order to create comparable research, researchers should describe an organization's characteristics: (1) authority structure—e.g. who can approve innovations and abolish organizations; (2) resources available—budget, personnel, support; (3) internal environment and pattern (Glor, 2001a, b); (4) external environment, e.g. its geographic and organizational community, political environment; and (5) whether the organization survived or disappeared, with details of its abolition, dates and reasons. Researchers should study innovative organizations at the same and different structural levels and organizations of the same and different types.

Organizational Environments. Internal, external, population, and community environments should be examined. *Internal environment.* At the organizational level, innovation studies take an outcome or a process approach. According to Gopalakrishnan and Damanpour, taking an outcome approach identifies "contextual, structural, and behavioural characteristics that differentiate innovative from non-innovative organizations." (1997: 18). De Vries, Bekkers and Tummers (2014: 28) found innovation outcomes are under-researched. The process approach describes classes of events and sequences that were important to the process. "Research at the organizational level offers insights into the role innovation plays in managing organization-wide concerns, such as adaptability to the environment, capacity to allocate resources to innovative (versus operative) programs or activities, and overall organizational outcomes and effectiveness" (1997: 18). Research should be done at these levels: innovations and their organizations initially, followed by inter- and intra-organizational comparisons.

At the subunit level, studies should focus on the innovation and its characteristics, such as

cost, complexity, relative advantage and radicalness, factors influencing the rate of diffusion within a population. Characteristics are primary or secondary: Primary attributes describe innovation type (e.g. technical, administrative) and do not vary with perception of them. Secondary characteristics such as innovation complexity or cost vary based on perceptions of them. A number of researchers propose that the organizational community is an important factor for a subunit, helping it access resources, create opportunities, and create legitimacy for the innovation (Astley, 1985; Hunt and Aldrich, 1998; Drazin and Schoonhoven, 1996).

Internal Organizational Patterns. Researchers should assess the context and pattern of behaviour of the organization sponsoring an innovation. If many innovations are discovered in an organization, this could be a marker for a reform program, a change of ideology in the government, or a pattern of innovativeness. Reform programs and ideology may speed up the discursive, decisional, and resource-allocation stages of implementation of innovation, which in turn may reduce the risk of a change of front line, senior/middle managers, minister or government or government revenues before the innovation is fully implemented. It takes about three years to fully implement most PSE innovations (Glor, 2014a). Innovations function in at least eight organizational *patterns*, based on an analysis involving three comprehensive factors: organizational and managerial culture (top-down, bottom-up), individual motivation (intrinsic/extrinsic) and organizational challenges (high-low) (Glor (2001a, b). Glor assessed the complexity of case studies of the patterns and proposed methods and measures to explore them (Glor, 2007a, b, 2015a, b), identify them, predict organizational survival (2007b) and predict the likely shape of pattern change (2015a, b).

External environment includes factors such as the economy (Damanpour and Schneider, 2008: 506), determinants of government expenditures (Glor, 1997: 232; 2000: 158), and the political environment. How well did the innovation comply with the dominant political paradigm in the government, the dominant coalition in the organization and the innovation's organization, population, community, and society? The state of the economy? Understanding requires examination of the administrative, policy and political ideology governing the organization. Researchers should use a measurement system for this. Glor (1997) assessed the political orientation of GoS innovations, finding conservative, liberal and social democratic innovations in about equal proportions, and Damanpour and Schneider (2008: 505-6, 510) studied the political orientation of managers, finding managers holding liberal ideology were more likely to innovate than conservative ones. The organizational community reflects previous and current non-political and political coalitions.

Organizational populations. Governments should be studied as PSE populations, departments and sub-units as organizations, and groups of organizations and populations as communities. A *population-level comparison* focuses on extra-population or intra-population phenomena. An *extra-population* approach identifies "factors that distinguish innovation development patterns and innovation magnitude" and can be used to distinguish among populations, dissemination of innovations and isomorphism/congruence. *Intra-population research* compares the introduction of one innovation in several departments and agencies of a government or several governments and that innovation's effect on their survival would be.

An intra-population focus considers the "relative differences in timing of adoption of an innovation across organizations" in a population and "the innovation's implications for organizational performance" (Gopalakrishnan and Damanpour, 1997: 17, referring to industries). Comparison of the introduction of an innovation in several governments and the effect on their organizations' survival would be extra-population research, while comparison of the introduction of one innovation in

several departments and agencies of a government and that innovation's effect on their survival would be intra-population research.

Organizational communities are at a higher conceptual level than populations (Astley, 1985; Astley and Fombrun, 1987). Communities involve members from different populations but are uniform in some way: they include supply chains, networks, collaborations, partnerships, strategic alliances, and professional groups involved in the innovation. Related governments (e.g. western Canadian provincial governments) and governments that compare themselves to each other (e.g. right/left wing Canadian provinces) likewise form a community. PSE innovations also require a front-end coalition/community of support/lobby to be created and funded outside or inside government in order to secure approval, implement and operate the innovation and retain support long enough to realize objectives. Adoption of an innovation by an organization is easier if organizations in the community are also adopting it. Ideologies and reform programs create comprehensive support for specific types of innovations—innovations that conform to these comprehensive approaches secure approval easier. *Ideologies, coalitions and communities* and their relationships to the innovation should be examined and described. Glor (1997, 2000, 2002) compared rank of implementation of 160 GoS innovations to rank of implementation in other Canadian and American governments considered the GoS's community. She also compared the GoS's frequency of adoption of innovations to that of the Region of York and the Government of Canada (Canada was a member of Saskatchewan's community) (Glor, 2002). As well as helping to classify whether organizations and populations are innovative or not, studies of organizational communities permit researchers to develop middle-range theories, group innovations that are similar, and propose relationships between groups of innovations, their antecedents and consequences.

Whether the community survived. Organizations and populations may be more likely to survive if the community survives and vice versa. This relationship should be explored. Just as Astley suggested the triumph of a new technology was not necessarily based on its intrinsic superiority, but rather the resources available to its champions and its timing (1985: 231), so in government new ideologies may or may not be intrinsically superior in serving the public good. Astley considered "basic" technological innovation to cause the origin of "quantum" speciation, which is the creation of major new arms of the evolutionary tree (1985: 232). Elected officials control major change in government, and community opinion leaders influence them, especially through changes in ideology. It is thus important for innovation research to identify whether the innovations being studied occurred within a minor or a major change and whether ideology changed. Astley (1985: 233) identified "compoos," small offshoot populations that sometimes expand into entirely new niches e.g. left wing governments nationalizing ownership of resource companies and right wing governments privatizing delivery of government services. While selection shrinks ecologies toward a stable state, new and expanded niches open up new space and new organizational communities. Growth in this environment is not only induced by the external environment of needs and resources but is also driven by the internal potential of innovations, organizations, populations and communities. An optimal fit is not required.

The patterns and survival of organizational communities need to be considered when studying the fate of innovations and their structures. Members of organizational communities include who employees compare their structures to, compete with and support, and the relationships in networks, partnerships, strategic alliances and supply chains, sometimes known as collaborative governance. Collaborative governance emphasizes "multi-actor engagement across organizations in the private,

public, and nonprofit sectors” (Hartley, Sorensen and Torfing, 2013).

Challenges. Besides dealing with the challenges identified so far, researchers must find innovative governments that can be researched (former public servants are a good source of information), and secure agreement for standard approaches among researchers. While De Vries, Bekkers and Tummers (2014: 29) recommended comparative case studies, the intent here is to study innovations and innovative governments and compare their effects on organizational, government, and community structures.

Measures and Methods

Because this paper focuses on the effect of innovations on organizational, population and community mortality, structure is the area of interest. The main objective of the research is to determine the demography of innovative populations and communities. Demography is the study of founding and mortality in populations. Carroll and Hannan (2000) identified the conceptual organizing principles of demography as: “(1) a population perspective; (2) focused on the vital events of birth and death; (3) concentrated on the flows of events in time and the implications of events for population structure—age is the master clock ... beginning with calculation of age-specific hazards (or rates), followed by comparisons of the rates across time and among various groups; (4) individuals are related back to the population through counting of demographic events and distributional measures of the population such as the mean and variance in age; and (5) models of demographic systems possess a coherent and consistent internal logic that permits demographers to move freely among the parts and levels of the system ... vital rates and population characteristics are used ... to derive implications for population change and stability” (Glor, 2013: 4-5, summary of Carroll and Hannan, 2000: 25-26). While the demography of normal organizational populations has been established (Glor, 2013), the demography of innovative populations has not.

Employing common definitions of innovation, researchers should identify *innovation(s)*, preferably all of the innovations of a department (ministry) or government (population), whether or not they were fully implemented; internal impacts, including whether they attracted public, political or client group praise/criticism; the innovations’ objectives and the effect of the innovation on the objective; whether and how it was of sufficient impact to affect the fate of the organization (e.g. consumption of resources, access to and allocation of personnel, independence, change in power balance); impact on the role, status, independence and prestige of personnel and the organization within the government and community; and the organization’s dates of founding and mortality. Surviving organizations are right censored, which can be handled mathematically. Mortality should be measured by whether the organization remained in or disappeared from a full record of organizations in a population (Glor, 2011). Researchers should record the magnitude of the innovation in order eventually to determine whether there is a size at which innovations begin to affect the fate of organizations. The effect of groups of related innovations should be examined.

Researchers should describe the *organization, subunit, organizational pattern, population and community* that implemented the innovation. Some of the structural possibilities for innovation implementation include: existing unit implemented a small innovation, new organizational unit/department/agency created to implement a large innovation, etc. An innovation will presumably most affect the organization implementing it, but there are exceptions. If there is a one-to-one ratio between an innovation and a structure, the innovation will be easier to track. Glor’s measures of

organizational patterns (2007a, b, 2008a, 2015b) could be used.

Comparable measures for innovative organizations, populations (governments) and communities should be used. Four comparable measures were identified in the definitions of innovation above: (1) number of innovations, (2) ratio of number of innovations to organizational resources (human and/or financial), (3) adoption rank in a population, and (4) adoption rank in a community. Using these measures, it is possible to measure the key concepts. *Innovative organizations* (1) introduce many innovations compared to normal organizations; and/or (2) have a high ratio of number of innovations to total resources or ratio of resources for innovation to total resources. The first definition does not take account of size (resources), known to be a factor in innovativeness, so the second measure is preferred.

Innovative populations (governments) are the ones that introduced the largest number of innovations first, second or third in a community or the populations (governments) with the highest ratio of innovations or innovative resources to total resources in their communities. *Innovative communities* (1) have the highest proportion of innovative populations in their membership, or (2) introduce the largest number of innovations early (first, second or third), or (3) have the highest ratio of innovations/innovative resources to total resources in their communities. It will be more difficult to determine resources in communities because information on resources may not be public, particularly for PS members. The measures are not limited to first introduction because of lack of systematic public information about which governments have introduced the same or a similar innovation. The relationship between implementation of innovations, being an innovative population or innovative community and organizational mortality should be considered. As well as adoption of innovations, innovative organizations' generation of innovations should be identified and their impact on organizational, population and community survival assessed. In summary, the measures of innovativeness employed should be number of innovations and adoption ranking in organizations, populations, and communities. The number of inventions generated, what they were, and their details should also be recorded. Organizational survival is a common measure of organizational effectiveness.

Comparative PSE research on innovation's impacts on its organizations should (1) define the PSE by ownership; (2) treat organizations both at the top and lower levels of the hierarchy as organizations, each government as a population, and communities as relevant other organizations and governments (e.g. a continent, European Union, OECD); and (3) compare adoption rank within organizations, populations and communities, and compare the ratio of resources employed for innovation to total resources. Whether the organizations are normal should be studied, defined as the range of results of all studies of organizational population mortality excluding outliers (Glor, 2013).¹² Right censored studies should be done; that is, studies should include organizational populations from their beginnings or only organizations from their beginnings. This was done for studies of normal populations, so this approach would assure there were many normal population to which they could be compared.

Levels. Drazin and Schoonhoven's (1996) four levels (population, organization,

¹² Glor (2011, 2013) found outlier populations were studied with different or problematic methods, had extreme mortalities, or included disproportionately organizations already known or likely to have extreme mortalities, such as newly created, recently changed, and highly successful organizations.

organizational subunit, and innovation) are suitable for the PSE with the addition of comparison of populations (governments) and the study of communities. An individual government should be treated as a population and both departments and sub-levels should be treated as organizations. The decision about level depends on a number of factors. If the objective is to study the impact of innovation on organizational mortality, full populations and communities should be studied. We are only aware of one set of researchers who have identified all of the innovations of a population (Glor, 1997, 2000) so far.

Innovation for what? While it is valuable to know that something is being done for the first, second or third time, innovations must also pass an ethical test—they must be making a positive contribution to their societies and avoid the risk that the calculable technical knowledge which enables the solution of problems of how to do something “does not displace our ability and even willingness to consider why or whether we should do it” (Gregory, 2006: 237). Many innovations have had the objective of increasing efficiency (Kuipers et al, 2014: 13) and reducing costs, often by putting people out of work. While this may be of short-term benefit to the organizational balance sheet, it may not be beneficial to society. While introducing technology or off-shoring work may benefit the organization according to the measure of its own costs, it may reduce quality, may not be efficient and may do much harm to the people laid off, their families and geographic communities. The organizational motivations and ethics driving innovations and the organizational, geographic community, organizational community, and societal impacts need to be described in innovation research. This topic deserves a paper of its own.

Innovation Process. To understand the impact of an innovation, it would be desirable for researchers to determine how important the innovation process was to the impact, by tracing the innovation process followed and distinguishing whether the organization generated or adopted the innovation. Several horizontal elements of the organization will be involved in the innovation *generation* phase, such as research, development and communications. The generation phase can be considered a success if the organization developed a way to exploit an innovation for its program or performance improvement or if the innovation became standard practice, and had the potential to lead to societal improvement.

Adoption of innovation in the PSE can be seen as an organizational change process that affects the technical, social and administrative systems of the organization. According to Gopalakrishnan and Damanpour (1997), it has three stages: initiation, implementation and results. They suggest the initiation stage does not occur if the innovation was invented by the organization so this must be clarified. From our perspective, initiation involves awareness of an innovation, formation of an opinion about it, and evaluation of it from an organizational and societal standpoint. Implementation involves the decision to adopt, trial implementation and sustained implementation. Adoption success is assessed by how thoroughly the innovation is integrated into the organization; its contribution to organizational conduct, outcome (Gopalakrishnan and Damanpour, 1997: 16ff) and survival; and societal improvement. Suitable measures include whether the innovation’s objectives were met, whether the innovation and the organization survived, and the impact on employees, elected officials and society.

Pollitt emphasized the importance of path dependency and a constructivist (importance of interpretation and logic of appropriateness) as well as a functionalist (rational choice, contingencies, efficiency, adaptation, results and logic of consequentiality) approach (2001: 480-3). Studying the

PSE, Glor found the innovation implementation process had five phases—readiness, negotiating approval, effective implementation, results and learning, and providing feedback to the system (Glor, 1998: 330, Figure 1). These phases should be identified and dated if possible.

Impacts. Some impacts that should be addressed include: (1) how resources were reallocated within governments, (2) whether organizational resources increased or decreased in order to introduce the innovation, (3) which values were dominant, whether dominant values changed and how they changed (e.g. humanist, economic, functionalist, etc.).

Privatization. If it is clear that a PSO was privatized because a government was privatizing government organizations on principle, such a case is probably not relevant for judging whether being innovative enhances or reduces organizational mortality. This is ideology at work, not innovation. An ideology holding that government organizations should be privatized is about power and only secondarily about civic improvement and impact. Ideologically-oriented innovations and organizational survival must nonetheless be documented because in such a circumstance ideological governments may be innovative, while at the same time the government's organizations may be at greater risk of mortality. As a potentially important sub-set of innovative organizations and populations, innovations and organizations created for ideological purposes need to be tracked.

Proposed Research

Organizational Mortality. While mortality is the main focus of this proposal, information should also be collected on other matters for a few cases. As in most other studies (see Glor, 2013), mortality should be defined as occurring when an organization disappears from the record. While successor organizations can be more and less similar to previous organizations, following analysis of the issue, Glor (2013: 5) also concluded disappearance “is the most practical definition for tracking organizations”. Normal organizational population mortality has been studied in the population ecology literature (Baum, 1996), which usually defines mortality as disappearance from the record. Glor (2013) used mortality rate as the main measure. A normal population may sometimes adopt innovations but not often, rarely as an early adopter, and in limited domains.

Besides information on founding, survival and mortality being collected about each organization, researchers should document: organizational origins (why it was created); the innovation's; organization's, population's and geographic and organizational community's history; internal and external environment; size, based on number of employees, budget and complexity, measured by the number of functions and structural units in the organization; level in the organizational hierarchy; organizational size distribution in the population; similarities to and differences from other organizations in the department (ministry) and population; survival profile of the organization (and compared to the other organizations in the department, if possible); organizational technologies, broadly defined; representativeness of the organizations studied; and the population and sub-population(s) of which the organization is a part (most of these suggestions came from McKelvey and Aldrich, 1983).¹³

To isolate the *effect of innovativeness on populations* requires study of innovative

¹³ McKelvey and Aldrich also suggested: "Qualitative methods, if applied to a representative sample of organizations and properly coded, can be just as useful to the deductive nomological model as quantitative methods" (1983: 106).

organizational populations and non-innovative organizational populations in historical pairs in substantial numbers, permitting determination of correlations with historical, contextual, process, and ideological factors. Researchers need to describe and count the number and magnitude of innovations individually, the levels in the hierarchy, the organizational patterns within which innovation occurred (and to the extent possible, dissemination of innovations in the population and community during this and other periods), the new organizations created to implement innovations, this government's and subsequent governments' innovativeness, and the fate of the innovations and organizations. These measures could then be compared to those of other governments.

Step-by-Step Process. As a step-by-step process, the following would be needed.

Step 1: Identify all the innovations of an innovative government (population) and, if possible, an equal number of changed programs, services and processes of a similar type that were not innovative, in the same government, introduced around the same time. While it would be possible to study only innovations, without a comparison group it will not be possible to identify/eliminate some potential causes of the survival or mortality of the innovations (e.g. distinguishing ideology from downsizing). Identify the date of the innovations, their organizations, the organizations one level higher and the department's first appearance in, date of full implementation (funding), and their disappearance from the record (if it occurred). Calculate the demography of the innovations and organizations.

Step 2: Research their budgets and numbers of personnel, their objectives, magnitude of the innovations (substantiality: were the innovations and organizations substantial enough to affect the fate of their organizations?), and what was new about them. If possible, determine whether the innovation had previously been implemented elsewhere and the results there. If possible, document political and management support, whether the innovation was institutionalized (Boin and Goodin, 2007; Boin and Christensen, 2008) and what the government's rules were for forming and terminating organizations (e.g. was legislation required? This assesses ease of termination). Identify equal numbers of new policies, programs and processes during the same period and a different period that were not new to the population but were new to the work unit, and collect the same data for them. Identify successor policies/programs/processes, successor organizations and communities, their resources and the politics of the governments making the changes: trace their evolution and their politics.

Step 3: Create a databank of this information. Identify the period of survival of the innovations, organizations and population(s). Based on 21 population studies, Glor (2013) created the following organizational periods: Short term: 15 years old and under; medium: 16 to 30 years old; long-term: over 30 years.

Step 4: Calculate the survival period for innovations, non-innovations, organizations, population and community, and calculate the mean survival period for types of innovations (e.g. income security, economic development programs) in the population. Calculate the correlation coefficients between the survival period for being innovative and the survival period for not being innovative. Compare the survival period for innovative and non-innovative policies, programs and processes by type of innovation (e.g. programs versus processes, economic versus social, resource-saving innovations versus expanded programs/ services for the public). Other survival analyses are also possible (Kleinbaum, 1996).

Glor and Ewart (2015) did a pilot project taking this approach, studying five income security innovations in the GoS¹⁴ 1971-82, in order to determine whether this research was possible. It was. They did not study the innovations' communities. Other researchers may also find they cannot collect all of the data suggested here, but it is better to collect all the information possible in a field where impacts have been so little studied.

Analyses. With founding and mortality dates for innovations and non-innovations, innovative and non-innovative organizations and organizational populations and (hopefully) communities, researchers would be able to calculate the number of years organizations survived, and the populations' and communities' mean mortality rates. If this was supplemented by collection of resource data (funding, personnel), their major changes over time, what portion they represent of higher level organizations' resources, and cost recovery, it would be possible to calculate correlations with size and resources.

Future Research

Eventually, research should be able to compare (1) organizational founding and mortality rates for a number of innovative and normal populations, (2) the fates of their organizational and geographic communities and (3) mean innovative and normal organizational mortality rates.¹⁵ Populations studied should be matched or contrasted to those of the same and other historical periods, ideologies, and levels of organization in comparable hierarchies (innovations should be studied from the same organizational level in the organizational hierarchy [Rousseau, 1985]), magnitude, amount of funding and human resources, management and political support, ease of termination, whether the innovation was institutionalized and what the rules were for forming and terminating organizations. These results could then be compared to populations with other characteristics, including some factors identified as relevant to mortality e.g. organizational niche and its density (Freeman and Hannan, 1983), newness (Singh, House and Tucker, 1986b), size, resources, institutional design (Boin, Kuipers and Steenbergen, 2010), internal and external environment (e.g. politics). New issues should also be considered, e.g. in the PSE, does mortality result from a niche closing, from a niche being over-crowded, or something else?

If enough comparable organizations and populations were studied, it should then be possible to assess across countries whether innovation is adaptive for the survival of PSO. Of course, while the survival of the innovating organization is a necessary condition for an innovation to be implemented and achieve its results, it is not a sufficient condition for the innovation's or the higher level organization's survival. Different players will have different objectives, e.g. political leaders may be most interested in whether innovation satisfies key constituencies while organizational leaders may focus on the effect of innovation on organizational impact or efficiency. Without survival, however, these objectives cannot be met.

Survival is a measurable result but the claim that it resulted at least in part from an organization's or a population's innovations or innovativeness must be examined and demonstrated.

¹⁴ This is the province about which Seymour Martin Lipset wrote *Agrarian Socialism* (1968).

¹⁵ While it would be ideal to compare innovative and non-innovative organizations, it will be hard to do. Defining innovative organizations is controversial and researching non-innovative ones will be expensive. Since we already have databases of normal organizations (which presumably include a few innovations) it would be easier to compare innovative organizations to normal ones. Finding significant results will be harder, however.

This paper attempted to outline a picture of how this could be done for PSE innovations and their impacts on their organizations, organizational populations and organizational communities, largely following a comparative methodology tied to the Glor analytical framework.

As to *future directions for research*, other vectors of comparison might be pursued, to include public/nonprofit and public/for-profit organizational, program, and project evaluations, along single or combined factors such as resource dependence, coordination and control, environmental constraints, regulatory supports and collaboration. For instance, nonprofit agencies are known to be chronically dependent on external funding, such as foundation and government grants. In certain fields like microfinance, organizational and program mortality is predictably high, year to year (Blanco, Irimia and Oliver, 2015), with turnover apparently occurring independently of innovativeness. Fafchamps (2004) finds that innovation failure is one of three major reasons for market failure in sub-Saharan Africa along with coordination and control failures, the latter often among nongovernmental networks, collaborations which should but often fail to dampen external threats. Innovation failure occurs when macro-institutional environments neither encourage nor bolster innovation, for instance lack of regulatory and resource supports, such as credit reporting and credit guarantees, for microlending.

By extension, public managers could deliberately take up resource-generation and structural-change strategies intended to increase the innovation capacity and the rate of innovation adoption and generation in their organizations. Innovation capacity and in general adaptive capacity differ across organizations because these turn on the complex interaction of organizational values, policy and programmatic agendas, resource mobilization sequences, political endowments, stakeholder support, risk management, and myriad factors addressed throughout this paper.

Follow-on research would benefit from a systems approach to the role of innovation in large-scale economic and social change along with organizational and interorganizational levels of change (Freeman and Soete 1997). Models for such an approach to the study of innovation are found in Nelson's (1993) proposal for the study of "national systems of innovation" and Ogle's (2007) treatment of cross-sector networks and "value-multiplication." These researchers emphasized the complex links and interactions among numerous social actors, in reciprocal influence with a wide variety of social, institutional, sectoral and political factors, all of which are consistent with the kinds of causation suggested in the present study.

Innovation entails risk and exposure to possible failure (Townsend, 2013; Li et al., 2008). Bhatta (2003), Parsons (2006) and Potts (2009), among others, have suggested that risk and failure are fundamental catalysts for innovation. Others have argued that innovation cannot be planned, but only approached in processes of trial and error (Ortt and Smits 2006), and that processes intended to manage uncertainty may work at cross purposes with the chance-taking required for the relatively spontaneous process of innovation. The fact that public sector innovations often appear accidentally rather than deliberately presents a special challenge in this context (Eggers and Singh, 2009).

Raipa and Giedraityte (2014), as do many other innovation scholars, speak of the development of risk-averse organizational cultures in the public sector, as public managers strive to control for rather than promote what is perceived to be risk-fraught innovation (Townsend 2013; Mulgan and Albury 2003). *Innovation risk management* (at the organizational level) and *risk*

governance (at organizational, interorganizational, and political levels) are often the strategic options left to these managers (Brown and Osborne, 2013). Attempts to manage innovation incline organizations toward incremental innovations, seen to present less risk to the adopting (and adapting) organization and to fit readily within existing processes with only minor changes.

If the premise is accepted that public sector organizations are too often prone to identify innovation with risk, so that innovation and risk-taking become—in effect—synonymous, then what factors may serve as counterweights? One factor may be that of *resource slack*, which refers to fiscal, technical, and human resources that are allocated or reallocated so as to become available to innovation efforts; available funding, for example, therefore becomes a potential catalyst for innovation, whether innovation is *sui generis* or adopted from best practices or other external sources (Osborne and Brown 2011; Martinez and Artz 2006; Singh 1986).

Another commonly-found proposal relates to collaborative innovation (Bogers, Afuah and Bastian, 2010). Some researchers cast collaborative approaches as dampening innovation and reducing risk-taking—begging the question of when these approaches may promote or retard innovation. One determinant may be the costliness of solution searches in any given instance, when these reach inflection points past which returns diminish or turn negative; another is the extent to which the values of public accountability in governmental contexts marked by regulatory control may work at cross-purposes to innovation search and adoption. The research consensus seems to be that mismanagement of government innovation, as with private-sector innovation, as tested by particular circumstances, is a factor in organizational decline and mortality (Latham and Braun, 2009), but there is as yet no clear consensus on positive tacks for innovation management. The prospect is there for cross-sector research, therefore.

Cross-sectoral similarities noted throughout this study suggest that research studies of innovation in governmental and nongovernmental settings may inform one another, and that multi-sectoral, comparative, empirical research following the directions suggested here are necessary if we are to fully explore the relationship between organizational innovation and mortality. However, because of the singular nature of many public sector agencies and programs, reflexive, cross-sectional studies may serve as well as comparative ones in advancing our understanding of the interrelation of innovation propensity, performance and survival (Phonkaew, 2001: 24). Reflexive studies could be undertaken of the same divisions or programs over time, over the organizational life-cycle or the S-curve of innovation adoption and diffusion (Cameron, Whetten and Kim, 1987; Land and Jarman, 1992; Rogers, 2010). Questions concerning innovation and mortality, and those connected to the co-development of organizations and innovation capacity, await new empirical efforts at both reflexive and comparative PSE research, as suggested throughout this study.

Conclusion

This paper proposed how the impact of innovation on organizational survival could be researched, identifying factors determining the effect of innovation on PSOs, with an emphasis on the effect on organizational mortality. The impact of innovation on survival cannot be determined through one research program in one country. Rather, it needs to be assessed in numerous PSO and populations before conclusions can be drawn, as was done with normal population mortality rates

(Glor, 2013). This allowed identification and elimination of outliers from study. The exploration of the effect of PSE innovation on organizational mortality is a question at the center of a research agenda that requires agreement on the meaning of terms such as innovation, innovative organization, innovative population, and organizational community; founding and disappearance; and agreement on appropriate methodologies and measures. To assure studies are comparable, researchers should coordinate their efforts and adopt common research frameworks, concepts, theories, definitions, methodologies and measures. Researchers need to be conscious of the definitions used by others and explicit about the meaning of theirs. Using standard definitions, research will be clearer, and relationships and theories can be tested across studies. Comparison of organizations, populations, countries and organizational communities would be possible if common definitions and research protocols were used. Some research programs on innovation leadership (e.g. LIPSE, www.lipse.org) and innovation in local government (e.g. Australian Centre of Excellence for Local Government) are currently being conducted. To our knowledge, none is being done on the effect of innovation on the mortality of organizations, organizational populations and/or organizational communities. There is close interconnection among innovation leadership and a supportive organizational culture, structure and environment, which may be brought together in particular instantiations in given organizations (Glor, 2001a, b).

When the mortality of innovating organizations and populations has been identified and compared to the normal baseline for the mortality of PSO established by Glor (2013), it should then be possible to assess whether innovation is adaptive for organizations, and to identify the positive/negative correlations between innovations/innovative organizations/ populations/ communities and the demography of their survival/mortality. Researchers should create longitudinal databases of innovative PSO, populations and communities. There is no equivalent in the PSE to the PS European longitudinal Community Innovation Survey (CIS) (e.g. Evangelista and Vezzani [Italy], 2010; Sapprasert and Clausen [Norway], 2012), but there should be. Having attempted to find some of the information identified as needed in this paper, lessons learned include: (1) Identify the information needed early on: it is more difficult to find it decades later; (2) Track the programs, policies and organizations over time. Accomplishing this would be easiest if a single organization was designated to collect the information, as opposed to a researcher trying to find it after the fact. A long-term funded research project would be helpful.

To explore the effect of innovations on their organizations, populations and communities, researchers require: (1) An ability to distinguish innovations, innovative organizations and innovative populations from normal/non-innovative ones. Data is already available on normal populations but not non-innovative ones. (2) Agreement that innovators are early adopters and that laggards solely catching up to normal are not innovative organizations. Judgement must be used when the organization is both innovating and catching up. (3) An understanding of the factors involved in organizational survival (this requires in-depth interpretive and correlation research). (4) Databases of innovative organizations, populations and communities, including dates of founding and disappearance from the record. Researchers would need to make the case that (1) an innovation had an impact on an organization's survival, and (2) organizational and population survival was related to an organization's innovativeness in whole or in part, rather than to other factors such as leadership or political selection. Researchers, professional associations and/or international agencies should develop and maintain databases of innovations, innovative organizations, innovative populations (governments) and communities in such a way that they are comparable to the existing databases of normal or non-innovative organizations, populations and communities.

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