

Public Sector Innovation Drivers: A Process Model

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ABSTRACT A model for the understanding of innovation in Public Sector Organisations (PSOs) was developed from literature. The roles of internal and external drivers, collaboration among organisations and continuous monitoring and evaluation with feedback were considered. The present paper suggests that policy makers and management practitioners eliminate various regulatory and policy frameworks that impede the capacity of PSOs to innovate. Furthermore, the appointment of public sector managers should be based on their creativeness and resourcefulness and not on political shrewdness, and they should manage PSOs like private sector businesses while still being accountable to the voters and government. The study contributes by extending literature on innovations, and it presents a conceptual framework for PSOs innovations. Moreover, the paper highlights some practical implications for researchers and practitioners in the public sector: There is a need to systematically review and organise relevant literature and to conduct empirical research in support of existing theories.

INTRODUCTION

Innovation in Public Sector Organisations (PSOs) is now recognised as a vital factor in meeting the challenges of globalisation and demographic changes, while at the same time, sustaining a high level of services to citizens and businesses (Donahue 2005; Bloch et al. 2010: 1). Furthermore, there is a perception of an increased recognition that public sector innovation has a considerable and varied impact on business sector performance, for example, through business services, procurement, physical infrastructure and information technology infrastructure (Oyelaran-Oyeyinka and Sampath 2007). To meet these challenges, the public sector to increase efficiency to cater for a growing demand from citizens and businesses driven by demographic developments and changing framework conditions such as competition, free movement of goods and quests for innovative products and services in an expanding global econo-

my (Kajanus 2000; Asongu 2007; Edler and Georghiou 2007; Sundgren and Styhre 2007). The public sector in most countries is large and many 'public services' are provided by both state-owned and private enterprises. Interaction between businesses and the public sector is seen as an important source of innovations and a precondition for business efficiency and global competitiveness (Bloch et al. 2010). However, a major challenge in this regard is how to measure the extent and the scope of public sector innovations and how to make comparisons among the sectors and countries, to determine impact of innovations on business development and society, as well as its dependence on businesses acting as private sector providers of goods and services (Clark et al. 2008; Organisation for Economic Cooperation and Development (OECD) 2010).

Innovation, on the other hand, is a process in which valuable ideas are transformed into new forms of added value for the organisation, customers, employees and stakeholders (Merx-Chermin and Nijhof 2005: 137). Innovations are instrumental in creating new jobs, providing higher incomes, offering investment opportunities, solving social problems, curing diseases, safeguarding the environment, and protecting security (OECD 2003; Aubert 2005). Rose et al. (2009: 17) state that governments around the world view innovation as a prerequisite for a competi-

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tive advantage in a globalised economy. Innovation, therefore, has been defined differently by scholars. However, for the purpose of the present study, innovation is defined as the creation of novel ideas or knowledge and application of new knowledge to create products and services that generate value for the public sector (Amabile et al. 1996; Merx-Chermin and Nijhof 2005:137). In terms of this definition, innovation should be the application of totally new ideas to the market or organisation and should not be confused with imitations of the products and services. This study will not only critically ex-

amine drivers of public sector innovations, but will also present an in-depth literature review on public sector innovations.

Conceptual Framework

Following an in-depth literature review, a conceptual framework, which will serve as guide for the discussion on drivers of public sector innovations, was developed. The framework was developed from open systems theory, organisational theory and other models from earlier publications in public administration (see Fig. 1).

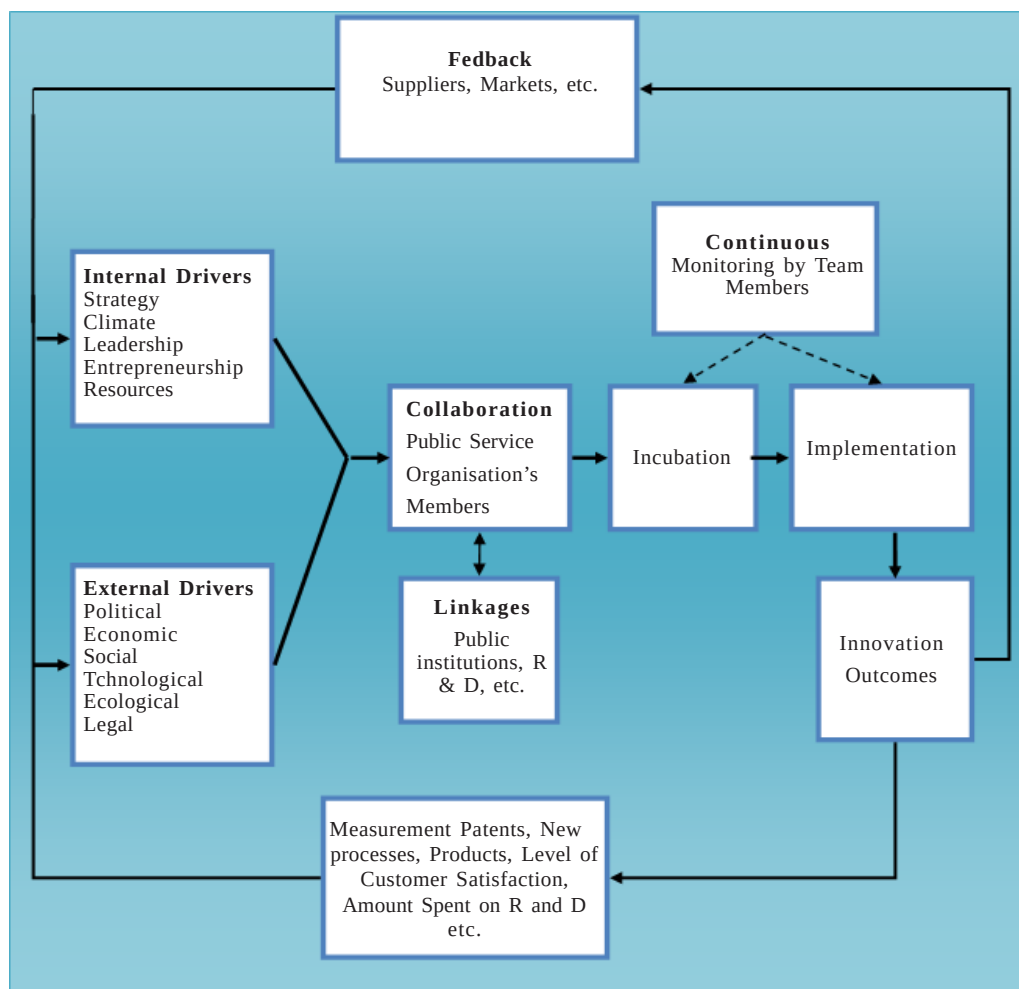


Fig. 1. Conceptual framework for public sector innovation

The current national system of innovation perspective is based on the idea that innovation occurs in a systemic context rather than in a linear way. It is argued that innovation should be regarded as a product of several factors such as mechanisms and interactive relations among systemic units that influence the process of innovation (Roste 2004: 5; Koch et al. 2006). Therefore, there is a need to study the whole system of institutions and organisational elements and processes in order to understand the phenomenon of innovations in the public sector (Nystrom 1990).

Internal and external drivers are integrated into a comprehensive model (see Fig. 1). Internal drivers are strategy, organisational climate, strategic leadership, entrepreneurship and organisational resources (Marr 2009: 48). External drivers are political, economic, social, technological, ecological and legal factors (known by the acronym PESTEL). Because of the unique role that Government plays in shaping the external environment and as the present model represents innovation in public sector organisations, external factors are discussed to reflect this complex situation.

Internal Drivers

Innovation does not occur overnight; it takes a while for ideas generated to mature into tangible benefits for organisations and their customers. Therefore, for innovations to be successful, ideas need to be incubated to allow for greater collaboration among organisational members to make arrangements to avoid losses associated with the premature release of services or products onto the market. Acting prematurely may result in serious setbacks for an organisation, particularly with regard to its brand image and reputation. Ideas generated need some kind of storage before the implementation process begins. Organisational members also need adequate time to experiment before good ideas are fully deployed. At this stage resources that are necessary for innovation are mobilised and both access to facilities and administrative support for innovation are intensified to transform innovation into value creation (Edquist 2009: 22). Therefore, the incubation bank acts as a seed-bed of business support and a technology transfer mechanism that encourages and supports

start up, incubation, and development of innovation (Seo 2006: 3). Once incubation is over, the organisation should embark on the implementation process, which involves commercialisation of the services or products. This involves mass production of the services or products for the markets (see Adams et al. 2006). Internal organisational drivers play a significant role during this innovation process.

Organisational Strategy

Organisational strategy represents one of the most important drivers of successful innovation in PSOs as it facilitates communication among the organisational members by virtue of its integrative role and the consistency that it offers (Oke 2002; Zduncyk and Blenkinsopp 2007). In this regard Martins and Terblanche (2003) mention five factors which specifically stimulate innovation and creativity: strategy, structure, support mechanisms, behaviour and communication. Organisational strategy plays an important role in driving innovation in the PSOs. For example, Miles and Snow (in Seyedjavadin and Zadeh 2009: 17) classify organisations according to their “adaptive patterns” ranging from the most aggressive organisations, the prospective organisations to the least pro-active.

Oke (2002) suggests that the first step in formulating an innovation strategy is to define what innovation means to the organisation or to specify the focus areas for innovation. By understanding the drivers of innovation needs, an organisation can develop its focus areas for innovation. Furthermore, Oke (2007: 569) states that innovation strategy provides a clear direction and focuses the effort of the entire organisation on a common innovation goal.

Therefore, management needs to develop the strategy and communicate the role of innovation within an organisation. Innovation strategy needs to specify how the importance of innovation will be communicated to employees to achieve their buy-in and must explicitly reflect the emphasis that management places on innovation. This is only possible when the management of public sectors craft strategy that is well integrated and aligned with the critical resources of the organisation. In addition, management has to decide how to use relevant technology and drive performance improvements through the use of appropriate performance indicators.

Despite the fact that strategy is an important driver of innovation in PSOs, research indicates that it can nevertheless pose as one of the greatest barriers to successful innovation if it is communicated to organisational members in an ambiguous or half-hearted manner, with the hope that employees will understand how it all fits together (Martins and Terblanche 2003; Marr 2009: 67).

Organisational Climate

Organisational climate may be defined as the feelings, attitudes and behavioural tendencies, which characterise organisational life and may be operationally measured through the perception of its members which is directly related to the organisation (Denison 1996: 644). This is because organisational climate reflects the behaviours of its members, the employees and management. Innovation should begin with the support of management. This assertion has been reinforced by studies (for example, Montes et al. 2004: 177) that suggest top echelons should promote an organisational climate in which workers in their posts are recognised for their efforts towards innovation, which, though contrary to short-term achievement of objectives, should be encouraged and valued for the long-term results of their efforts in terms of innovation. Montes et al. (2004: 177) further state that a climate that is characterised by cohesion and support for workers and the inherent recognition of temporary workers, creates a stimulus for them to invest their time and effort in innovation.

Strategic Leadership

Organisations that are innovative always go for radical change to improve their performance, hence they tend to use strategic leadership to achieve both innovative direction and innovative potential (Elenkov et al. 2005; Boal and Shultz 2007; Sarros et al. 2008). Therefore, their long-term success depends on how well they succeed in both these respects (Nystrom 1990: 145). Leadership dimensions that have been found to be related to the innovation strategy possess the following qualities: divergent thinking, critical thinking, technological skills, problem-solving, analytical skills, strategic thinking and numerical abilities (Pagon et al. 2008). The above

cognitive competencies are found to be strongly linked to the innovative and change management capacity of public sector managers. However, although these leadership dimensions that have been identified (Pagon et al. 2008), tend to be highly visible among the chief executives of the private sectors, the same is yet to be observed among their counterparts in the public sector organisations.

Entrepreneurship

Entrepreneurial innovation is the process by which staff activates new ideas in their organisations (cf. Gilbertson 2002; Christensen 2005). Successful entrepreneurship requires a combination of three sets of skills: psychological, interpersonal and technical (see Antoncic and Hisrich 2001, 2003; Antoncic 2007). Psychological skills refer to the mindset and mental skills necessary for successful entrepreneurship. These essential mental skills include passion, commitment, confidence, self-awareness, willingness to learn, an action orientation, psychological resilience, and tolerant of uncertainty (Antoncic and Hisrich 2003). Interpersonal skills refer to those skills that revolve around managing key relationships and relationship-based settings vital to new venture success (Antoncic and Hisrich 2003; Antoncic 2007). Essential interpersonal skills include sales skills, negotiation skills, team skills, influencing decision makers and general communication skills (Oke 2002; Martins and Terblanche 2003). Technical skills include areas such as concept development, strategy, planning, market research, economic evaluation, marketing, financial control, risk management, intellectual property management and resourcing.

The Organisation's Intangible Resources

Only intangible resources will be discussed here. Intangible resources are those non-tangible resources that support an organisation's competencies in such a way that they contribute to its value proposition on behalf of its various stakeholders (Adams et al. 2006; Marr 2009: 48). Such intangible resources may include all skill sets of the workforce, their depth of expertise and breadth of experience. According to Marr (2009: 49), human resources can be seen as the

living and thinking component of intangible resources. These resources therefore leave at night and return in the morning while relational and structural resources usually remain with the organisation even after the people have left the organisation. In addition to the attitudes and aptitudes of its staff, human resources include skills and knowledge of employees, as well as expertise in certain fields that are important to the success of the enterprise.

However, the real issue is not the skills and knowledge per se, but how these intangible resources are managed by means of effective rewards systems, autonomy, and opportunities for further development. For example, if organisations wish to benefit from invisible knowledge, such knowledge must be elicited, shared and codified into explicit knowledge (cf. Merx-Chermin and Nijhof 2005: 138; Fehr 2009). Similarly, Gunday et al. (2008) demonstrate that human capital, which encompasses the skills, creativity and experience of individuals, is the most valuable resource for innovation and therefore they suggest that organisations should invest in human capital by improving education, training and learning opportunities as well as developing the innovation skills of their workforce.

THE ROLE OF GOVERNMENT

Although not indicated explicitly in the conceptual framework (see Fig. 1) government plays a role as the driver and provider of the policy framework within which PSOs operate. The role of government as external driver is well summarised in the ministerial report on OECD Innovation Strategy (OECD 2010). The report indicates that government determines demand-side policies, such as smart regulations, standards, pricing, consumer education, taxation and public procurement that can affect innovation. This is because demand is necessarily linked to supply policies that affect both need to be better harnessed to drive long-term innovation and sustainable growth within the PSO. Government provides the necessary infrastructure that facilitates innovation in the PSO, however, the current economic environment raises a risk that government may make policy budgeting decisions that are not the best for the medium term and that can harm innovation and longer term prosperity (see OECD 2010). It is argued that cutting back public investment in support of in-

novation may provide short term fiscal relief, but will hurt long term growth. Moreover, innovation-driven growth makes it easier for government to make necessary investments and policy interventions to address the many global challenges facing society (see OECD 2010).

Government facilitates innovation through the establishment of the frameworks, regulations and markets that enable organisations and other actors to engage in innovation. This takes place as structural reforms in education and training policies, in entrepreneurship policies, in product and labour markets, in public research institutions, and in policies to help develop networks and markets for knowledge can go a long way towards improving environment for PSO innovation (see OECD 2010).

It is abundantly clear that government plays a major role in political, economic, social, technological, ecological and legal environments of PSOs.

External Drivers

The organisation influences the external environment through innovations or added value for its stakeholders. Conversely, the organisation is influenced by the external environment as the organisation creates new knowledge and information out of its analyses of the environment (Merx-Chermin and Nijhof 2005: 139). Organisations, inclusive of PSOs, depend on the constant scanning of the external environment which includes not only the governmental organisations but also governments and businesses in other countries. Organisations' external environments comprise three interrelated sets of factors, that is, factors in the remote environment, factors in the industry environment, and factors in the operating environment (Pearce and Robinson 2003: 57), that play a principal role in determining the opportunities, threats and constraints PSOs face (Pearce and Robinson 2003: 91). The external environment according to (Pearce and Robinson 2003: 91) comprises factors beyond, and usually irrespective of, any single organisation's operating situation – economic, social, political, technological and ecological factors. These factors are referred to as "remote environment," since they are not immediate to the organisation's environment. These factors coupled with other factors such as operating environment and industry environment

form the basis of opportunities and threats that an organisation faces in its competitive environment. It should be noted however, that the forces in the external environment are so dynamic and interactive that the impact of any single element cannot be wholly dissociated from the impact of other elements. It is because of this thin vein that, the study of the external environment of the PSO becomes imperative as a mean to solving innovation activities of this sector of the economy. Therefore, in the subsequent paragraphs each factor has been analysed with the aim to establish how they affect the PSO innovation activities.

Political Environment

Political decisions may have an impact on various vital characteristics of organisations for example the education of the workforce, the health of the nation and the quality and kind of infrastructure of the economy such as road, rail, air and water transport systems (Marr 2009: 37). Innovation is also driven by the desire to keep up with public needs and expectations such as the provision of welfare services, efficiency, cost cutting in the service provisions and accountability to the general public and government. Strategic change in the public sector frequently require a strong, top down enforcement of political will coupled with the political recognition that change requires the allocation of substantial resources (Koch and Hauknes 2005). A study conducted by Koch and Hauknes (2005) indicates that, this political thrust is based on the government ideology or is a response to critical events and pressures.

Countries like Japan, the Netherlands, Canada, and Sweden were more concerned with the impact of innovative pursuits on national interests, hence industrial policies were oriented to addressing innovation inputs (Goh 2005). According to Goh (2005) countries such as France and Japan consider state involvement as essential to producing effective results in large-scale innovation programmes undertaken by the private sector. Therefore, Goh (2003, 2005) recommends that developing nations should formulate their own industrial policy according to their unique political and socio-economic conditions.

Economic Environment

Most empirical research and surveys of organisations show that innovation leads to new

products and services that are higher in quality and lower in price (Rose et al. 2009: 1). To be competitive in the global market, organisations must not only strive for developing innovative and high-quality products and services, but must also deliver them on time and at a lower cost than their competitors. Therefore, present employees are required to be creative, yet also conform to rules and standards, and work efficiently to meet deadlines and remove constraints (Miron et al. 2004: 175). For example, a good relationship with customers may be used to feed back into the system to improve the services provided or may result in a new service or products that have never been offered before (OECD 2005; Seo 2006; Box 2009).

It is also recognised that demand is a major source of innovation, when it is geared towards innovative solutions and a product that has the potential to improve delivery of public policy and services (Edler and Georghiou 2007). Public procurement will allow learning and technological improvements to spill over into the market in which the procurement takes place. Edler and Georghiou (2007) further argue that, demanding progressive public procurement may enhance the technological level of competition, and also set incentives for local producers to face the technological challenge posed by such demand.

In the case of PSOs, the rate of economic growth, interest rates, exchange rates and inflation rates, influence both an organisation's cost resources and its customers' demand for services and products (Marr 2009: 37). Therefore, organisations may pursue innovation to counter the effects of one or all those factors perceived as a threat to its survival in both short and long term. Innovation in the PSOs is driven to contain cost pressures, and increase the efficiency of the public services (Mulgan and Albury 2003: 5). It is argued that without innovation, public services costs tend to rise faster than the rest of the economy. In addition, without innovation the inevitable pressures to contain costs can only be met by forcing already stretched staff to work harder (Mulgan and Albury 2003).

Economists have long recognised the critical importance of innovation and capital accumulation for growth (see Solow in United Nations Millennium Project (UNMP) 2005: 27). The empirical evidence and modern theory of economic growth provide strong support for this claim that long term economic growth requires not only capital, but also an understanding of

innovation (UNMP 2005: 27). The study further adds that, focusing on accumulating capital will not be sufficient to ensure long term growth rates that can reduce poverty and help achieve other goals. Therefore, innovation and technology are also needed to transform countries from over reliance on the exploitation of natural resources to technological innovation as the basis for development (UNMP 2005).

Social Environment

The social environment includes demographic characteristics (for instance population growth, age distribution, ethnic diversity) and cultural aspects of the environment in which the PSO operates (Marr 2009: 37). In an economy, an aging population, for example, may have an impact on the health care system of a country as people live longer, costs to care for them increase. Social factors should be perceived as those factors which are external to the organisation, hence there is very little that the organisations can do to influence them significantly, however, with the application of innovations, social factors such as demographic changes (for example, migration to cities), diseases (for example, HIV infections), poverty and hunger, can be managed and brought under control. Social factors have been known to exert enormous pressure particularly on the service provisions in developed and developing economies. Therefore, in order to respond to these pressures, governments are forced to look for innovative means through effective and efficient public sector interventions to contain such demands from the general public.

Pressure from the public, especially in urban centres in developing economies, arises as a result of the demand for decent housing, quality drinking water, electricity, good road networks, security, food security, good health care systems and the need for good education systems (United Nations Millennium Project 2005). These diverse needs require public sector organisations, which provide these services, to innovate to meet the demands of their citizens. For example, public sector innovations such as harnessing renewable energy sources through cleaner, more affordable, and more reliable technologies, can prevent the dependency of developing countries, on fossil fuels and avert potential energy crises and environmental degradation

brought about by the depletion of soil and coal (UNMP 2005: 73). Furthermore, improved access to clean energy could play a role in improving peoples' health by reducing air pollution, and increasing the efficiency of agricultural production, hence increasing food security (UNMP 2005: 73).

Technological Environment

Technological advances that have an impact on an organisation and its levels of automation, achievement and potential, provide a fertile ground for innovative activities that result in new or improved goods and services (Marr 2009: 37). With an ever-increasing rate of technological changes, the public sector is hard pressed to keep up. While technology and automation can reduce costs and open the door for innovations, they can also change the demand for services and products. For example, current demand for online services provided by government bodies to the general public has revolutionised the levels of products and services on offer (Goh 2005: 236; Marr 2009).

It is clear that technological innovation can be a strong determinant or driver for subsequent innovation. The introduction or availability of new technology for example, telemedicine or advanced data storage and handling capabilities may provide an opportunity for another form of innovation (such as process, organisational, delivery, system interaction) to take place or to be implemented (Koch and Hauknes 2005: 45). Conversely, Goh (2005: 236) states that innovation involves the application of various types of technologies, processes, techniques, organisational, social and other forms of codified knowledge. It requires the integration of human imagination, intuition and creativity at all levels to achieve success. However, in developing countries, where technological advancement is still lagging behind, there is a possibility of failure to integrate such innovation mechanisms due to technological incapacitation, hence the reason why most public sector in the developing world are not innovative in their orientation as compared to public sectors in the developed world (Goh 2005; Koch and Hauknes 2005).

Ecological Environment

Protection of the ecological environment requires PSOs to be proactive rather than reactive in their control and management of factors re-

sponsible for environmental degradation. As the human population increases, having already reached 7 billion in 2011, enormous demands are placed on industrial products, water, land and air. Although there has been a growing concern to protect the environment from the impact of organisational activities, and many organisations are trying to reduce their carbon foot prints and water foot prints (see Bloch 2005; Marr 2009), the ecology is badgered by the impact of harmful human activities (Pearce and Robinson 2003: 62). The results of these activities are global warming, loss of habitat and biodiversity, as well as clean air, water and land. To overcome these challenges, PSOs must adopt innovation as a way to protect the ecosystem. This can be accomplished through the innovative design of public goods and services that are eco-friendly; policy and/or legislation alone cannot be the panacea to protect the ecology.

Therefore, it should be the priority of all PSOs to design public goods and services that are environmental friendly, while at the same time formulating strategies to protect the environment from degradation by means of partnerships with the general public and the private sector. Simultaneously, there is an increased recognition that innovation can occur without necessarily embarking on Research and Development (R&D). For instance, innovation may originate from contact with customers and suppliers or market analysis as opposed to research and development of new technology (Bloch 2005: 3). On 20 April 2010, when the oil well below British Petroleum's (BP) oil rig, Deepwater Horizon, exploded and extensively polluted the area in the Gulf of Mexico, serves as an example of a public sector innovative response to try and mitigate damage to the environment. For example, on The White House (n.d.) official website of the presidency of the United States of America, the roles of the Environmental Protection Agency (EPA), the National Oceanic and Atmospheric Administration (NOAA) and other government agencies in assisting with the disastrous circumstances are clarified, websites and other contact details are supplied and citizens are urged to volunteer their services, vessels and/or apparatus to these agencies.

Scholars unanimously agreed that, PSOs have been unable to adequately respond to large scale social, economic and environmental challenges that currently face our society (Albury

2005; Nambisan 2008; OECD 2009). The United Nations Millennium Project (UNMP 2005: 74) study found that, most developing countries, rely heavily on fossil fuels for most of their energy. This study further adds that waste products resulting from the use of these fuels have been found to have a ruinous effect on both human health and the environment. For example, the study indicates that almost 800,000 deaths are caused by urban air pollution every year, with nearly two-thirds of them in developing countries (UNMP 2005). These challenges cannot be met by PSOs that are traditional in their operations; rather it requires that innovation becomes the cornerstone of the provision of public goods that aim to protect the ecosystem. Public sector innovation can be instrumental in championing new ways to help reduce air pollution, especially from waste products of non-renewable energy sources, and by doing so, to decrease the dependence of developing countries on these sources while at the same time preventing health and environmental problems (UNMP 2005).

Legal Environment

PSOs are founded through legislation, therefore, their operations are prescribed by what is known as a "mandate"; to fulfil their mandate, PSOs are required to operate within given parameters. By its very nature, the mandate thus imposes a degree of constraint on innovation. Porter and Stern (2002) state that innovation activities of the organisations within a country are strongly influenced by national policy and the presence and vitality of public institutions. These authors argue that the intensity of innovation depends on an interaction between private sector strategies and public sector policies and institutions. It is essential that governments play a significant role in creating an enabling business environment through the enactment of an appropriate legislative framework, business policies and regulations. Goh (2005: 218) states that, to achieve an innovation-driven economy, particularly in developing countries, the objective of industrial policy generation should be an accelerated pace of competitive and sustainable industrial growth within a functional framework characterised by a growing market orientation and private sector-led development. In addition, objectives could be achieved if a country seeks to transform its na-

tional economy to be innovation-driven by pursuing an industrial policy that is predominantly rooted in innovation imperatives.

Government's role in public sector innovation is well documented. Goh (2005), for example, while studying the role of the government in Singapore, found that to extract the full benefits of any industrial policy by governmental facilitation, it should also be acknowledged that governments cannot create innovations; ultimately only business enterprises can, and should. Hence, in many instances, the best form of governmental facilitation in any industrial policy measure is to dismantle, reduce and minimise potential barriers, obstacles and restrictions. For example, countries like the United States of America, the United Kingdom, Japan, France, Germany, the Netherlands, Canada, and Sweden were among the first developed nations to have enacted industrial policies which took into consideration the concept of national innovation systems to replace older, more generic industrial policies (Goh 2005: 221; OECD 2010). The United Kingdom adopted industrial policies with legislation directed toward the institution of taxes and financial measures (see Goh 2003) while in the USA about half of the measures were related to the regulation of innovative activities with laws to demarcate the legal limits of these activities.

Collaboration and Linkages

Research corroborates that innovation no longer depends only on how public sector, universities, research institutions or government regulators perform on an individual basis, but on how they work in unison (Goh 2005: 236; Bloch et al. 2010; OECD 2010). Hence, Goh (2005) urges that, institutional, organisational and societal rigidities that stifle national innovation systems must be eradicated and obstacles that prevent co-operation and networking have to be removed. Goh (2005) also recommends that collaboration and partnerships should be promoted. Such collaboration involves the activities taking place as a result of interactions among the various drivers in a flourishing climate that facilitates innovation in public sector organisations. The rate, at which drivers facilitate innovation, depends on how public sector organisations manage the catalysis between internal and external drivers. This interface among various

drivers assists with value-creating, barrier-crossing, resource-harnessing cooperation of organisations and collaboration of people across ranks, jurisdictions, and sectors (Goh 2005: 233; Seo 2006; OECD 2010). This creates an environment conducive to the free flow of information, for sharing ideas and dispelling the fear of failure, an atmosphere in which innovation can thrive. A viable system of ideas, tacit knowledge and techniques are generated but nevertheless, lesions and mistakes must be recognised so that the entire organisation may enjoy the collective knowledge of its people and their experiences (Bloch 2005; Seo 2006; OECD 2010). Innovation rarely occurs in isolation; it is a highly interactive process of collaboration across a growing and diverse network of stakeholders, institutions and users.

Public sector organisations source external knowledge through partnerships, alliances and joint ventures with external parties or through Research and Development (R & D) contracts and the licensing of patents. PSOs also increasingly seek external partners, partly through emerging knowledge markets, to commercialise innovations that are not used internally. The effective management and reinforcement of Intellectual Property (IP) is crucial to these arrangements, not only to identify useful external knowledge, but especially to leverage an organisation's intellectual assets to create value (OECD 2010). Public-private partnerships based on established good practices, such as affordability, value for money, risk sharing, competition and transparency, can strengthen public sector innovation. The public sector needs to have sufficient capacity to create, manage and evaluate such partnerships (Baskaran and Muchie 2007; OECD 2010). This may not involve partnership only, but also networking through markets and other mechanisms, including interactive learning among different organisations involved in the innovation processes (Seo 2006; Edquist 2009: 22; Papaioannou 2009). A study by Seo (2006: 2) on South Korea techno-parks reveals how collaboration and linkages created a flourishing climate for innovation. Innovative activities involve many actors and stem from a combination of commentary, specialised competencies and knowledge of various actors. These combinations and linkages of different actors are needed by PSOs in order to develop innovative ventures and to remain competitive.

On other hand, Bommert (2010: 29) argues that, the principal reason why collaborative innovation is more suitable to solve persistent and emergent problems is because it opens the innovation cycle to a variety of actors and taps into innovation resources across borders, overcomes cultural restrictions and creates broad-political support for public innovation. As a consequence of these effects collaborative innovation has the potential to improve idea generation, selection, implementation and diffusion.

CONCLUSION

This paper has identified several drivers to public sector innovation that are very significant for successful innovations. It is clear from the literature that the main internal drivers of public sector innovations are organisational strategy, organisational climate, strategic leadership, entrepreneurship and intangible resources. On the other hand, it has also revealed that external drivers to public sector innovations include political, economic, social, technological, ecological and legal factors. Innovations in the public sector organisations have not received wide attention compared to private sector innovations and this could explain why there is more literature on private sector innovations as opposed to the public sector cases. Although there is some degree of innovations in the public sector, the private sector organisations still tend to thrive on innovative ideas of their employees for their survival. The reason for this disparity can be explained by the fact that, the private sector is profit oriented or inclined, whereas the public sector enjoys the monopoly provided by the protective governmental policies. In the absence of competition it is advisable that the government uses other methods that can stimulate innovations in the public sector. These methods can be innovation-friendly policies, public procurement of innovations or to facilitate entrepreneurship among public sector managers and to hold them accountable to citizens.

The implications of this paper are that, public sectors managers need to change their attitude and manage these organisations like their counterparts in the private sectors, while bearing in mind that, they are accountable to the general public and government. They must create strong links with other public or private institutions, particularly in knowledge sharing, that

feed innovations. In this way, they will be able to adopt radical changes in their processes and methods for the improvement of products and services. Governments need to eliminate levels of protectionism, for example, by reducing laws that protect public utilities from free market competition and to oblige them to become more accountable to their stakeholders.

Policies that impede innovations in the public sector should be eliminated and replaced by more liberal ones that can stimulate creativity and innovation in the public sector. Innovation should be the criterion for judging high performing public sector organisations and reward systems should be restructured to reflect such changes. These measures will not only help them innovate, but will also result in improved services to the consumers. The appointment of the public sector chief executives should be based on their level of creativity and innovativeness rather than political astuteness, which is sometimes associated with political party membership, particularly in the developing countries.

Furthermore, for researchers, there is an urgent need to systematically review and organise literature on public sector innovations. The limitations of the literature on the subject impede understanding of the main factors that drive or limit innovations in the public sector. Literature on public sector innovations in the developing world in particular, is limited. Since innovations can be country specific, this type of study would help when comparing data obtained in the developing world and in the developed world in order to get a clearer picture of innovation in the public sector.

The present authors also found that it is necessary to establish national innovation systems to guide a country's innovation activities for the purpose of benchmarking and to act as a seedbed for innovation. This should support creativity and innovation in public sector organisations.

Although, the present study adds to the existing literature on the public sector innovations, it only relied on the secondary data. Hence, there is a need for empirical research to investigate the applicability of the present theoretical model. Future researchers may also consider conducting research on other areas of public sector innovation such as the role of chief executives in PSOs innovations. This is an area in which there is currently a dearth of literature. Such stud-

ies may shed some more lights on the role of these chief executives in determining the innovative capacity of their organisations.

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