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The Antecedents, Processes, and Outcomes of Public Sector Innovation: An Interactive Model

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Abstract:

Governments worldwide have become reliant on public sector innovation to pursue specific substantive outcomes, including efficiency, effectiveness, social justice, accountability, etc. It is increasingly recognized that realizing substantive outcomes requires overhauling existing theoretical models of public sector innovation. The existing models remain either sequential or provide a limited view of interactions between the antecedents, processes, and outcomes of innovations. This study aims to fill this gap by proposing a conceptual dynamic model of public sector innovation that considers the interconnectedness of internal and external elements with the processes and results of public sector innovation.

This article has elaborated on three antecedents: the Sociocultural and

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political forces, globalization and competition, and the economy as an external factor. At the same time, the internal factors were defined in three antecedents: management and leadership, resource availability, and HR capability.

Keywords: Public sector innovation, Environmental antecedents, Internal antecedents, Management Processes.

1.0 Introduction

The phrase 'innovate or die' is not only meant for the corporate world and geopolitics; it has become a *sine qua non* for governments. Since the emergence of modern nation-states, public organizations have faced relatively stable environments. Since the 1970s, rapid changes and complexity in socio-cultural, political, economic, environmental, and technological environments have swamped society. Contemporary society is facing more 'wicked' problems than it did before. Amidst the chaotic environments, organizations of all kinds must innovate to survive. Once Taylorism and Weberianism swamped the organization and management of both public and private organizations.

Interestingly, the private sector has always coped well with environmental changes through numerous innovations. In contrast, the public sector has always been lagging. Only in the 1980s did the public sector realize the pinch of maintaining the *status quo* in its management. Inevitably, the public sector had to learn the lexicons of innovation.

Volatile oil prices, financial crises, and the deteriorating public sector performance in the 1970s put the whole public sector in a challenging situation. It was attacked on two counts. First, it was overburdened with too many responsibilities. It looked like a monolithic structure with minimum utility. Second, the mode of public sector management was found outdated, full of inertia, non-responsiveness, and inefficient. State decision-makers in Anglo-Saxon countries influenced by the neo-liberal market ideology proposed solutions to the two-fold crises. The role and scope of governments should be reduced to facilitate the participation of the private sector and civil society. In addition, the traditional archaistic bureaucracy should

embrace the results-oriented precepts of business management to enhance efficiency. Market-oriented initiatives, including divestiture, public-private partnership, franchise, and outsourcing, were implemented in the economic sphere. In the management sphere, results-oriented practices, including strategic management, performance management, marketing orientation, and performance and program budgeting, were implemented, discarding the rules-based Weberian system. These business management practices implemented in the public sector constitute what is popularly known as the new public management (NPM) model. Once alien, these management practices made inroads into the public administration domain and heralded a new era of innovation (Pollitt & Bouchaert, 2011).

The NPM continued to dominate the intellectual and practical domain of the public sector until the late 1990s. With the advent of the new millennium, the NPM came under the criticism of scholars. Newer approaches such as new public governance (Osborne, 2006), co-production, co-design, and co-creation (Osborne, 2018; Alford, 2009; Osborne et al., 2021a), digital-era governance (Dunleavy et al., 2006) and public value (Moore, 1995) have come into prominence. The insights gleaned from these approaches have been experimented with mixed results.

A large body of literature on public sector innovation (PSI) exists. Most studies focus on the determinants and the types of PSI (Van Dij & Steen, 2022; Korac et al., 2017; Chen et al., 2020; Cinar et al., 2022; Arundel et al., 2015; Walker et al., 2015; Walker, 2007) while some reflect on the types of innovation only (Bugge & Bloch, 2016; Torugsa & Arundel, 2016). There is no dearth of research on the impacts of innovation (De Vries et al., 2016; Hartley et al., 2022; MacLean & Titah, 2022; Criado & Gil-Garcia, 2019). What is lacking is a comprehensive framework that brings antecedents,

processes, and impacts within an interactive loop. The current study aims to develop a comprehensive interactive research framework that combines these three aspects in a dynamic interactive mode. Very few studies have deliberated on the role of feedback, accountability, and learning in PSI (van Acker & Bouchaert, 2018). This study attempts to fill this void by developing a research framework that underscores the need for interactive relationships between antecedents, innovations, and outcomes.

The paper is structured as follows. The second section reviews the existing models and their limitations. The third section focuses on the development of the research framework with propositions. The fourth section discusses the proposed framework. The fifth section concludes the paper with future directions.

2.0 Public sector innovation: An overview of the literature

2.1 Meaning and types of public sector innovation

With the pace of globalization in the 1980s, governments worldwide began to deregulate the economy and modernize public service organizations (PSO) as the pre-existing state-dominated model was found inadequate to withstand the challenges of the market economy (Farazmand, 1999). The public sector has adopted the idea that innovative approaches can increase service improvement and problem-solving skills, responsiveness to clients' needs, and facing other critical social problems (Osborne et al., 2021b). Many traditional public management practices were supplanted by the NPM precepts, which were termed as innovations to enhance government performance, accountability, service delivery, and the efficient use of financial and managerial resources (Wu et al., 2013; Hijal-Moghrabi et al., 2020; Arundel et al. 2015).

There is disagreement among scholars about the precise definition of innovation. In the past, innovation was conceived as change. In simple terms, innovation connotes a new change in the organization. According to Chen et al. (2019), PSI is defined as the development and implementation of a new idea by a public sector organization to create or improve public value within an ecosystem. PSI is developed and introduced into the ecosystem and is regarded as a collaborative innovation which requires close cooperation among multi-actors in the ecosystem. However, several points must be clarified to understand the meaning of innovation. First, some scholars relate the phrase "new' to the organizations adopting it, while for others, innovation must be objectively new in the respective environment (Damanpour 2020). Second, new can be transformational, large-scale, and small-scale (Bessant, 2005). Third, change is not synonymous with innovation. Innovation signifies the discontinuity from the past practice. "…. innovation involves a step change. The step change may be small and often hardly noticed by the higher management of an organization…, but it involves a shift in perspective or mindset along with changed practices (Harley et al., 2022, p.24). Fourth, innovation is where it is implemented, though it can be created somewhere else. It is also found that exact replication of an innovation is rare (Hartley et al., 2022). Fifth, some scholars subsume success or positive impact in the definition of innovation. However, it is problematic to conflate innovation with success as there are numerous examples of failures, or it can be successful initially but ultimately fail (Geuijen et al., 2022).

At this point, it is also pertinent to briefly discuss the innovation typology. Different scholars have identified different types of innovations. De Vries et al. (2016) identified four dominant types of innovations - process,

product/service, governance, and conceptual. According to Buchheim et al. (2020), innovation types include product/service, process, paradigm, and governance. Paradigm innovation refers to looking at the issues faced by the organization with a different mental framework or perspective. Governance innovation relates to changes in institutional framework and decision-making authority. After a vigorous review, Chen et al. (2020) have provided a new configuration of the types of innovation: mission, policy, management, partner, service, and citizen. Diverse types of innovation are discussed in other studies (Korac et al., 2017; Cinar et al., 2022; Torugsa & Arundel, 2016; Walker, 2014). Available literature shows that product/service and process dominate public service organizations (Walker, 2014; De Vries et al., 2016; Buchheim et al., 2020; Chen et al., 2020; Cinar et al., 2022). Most studies reveal that different types of innovation are driven by distinct antecedents (Walker, 2014; De Vries et al., 2016; Buchheim et al., 2020; Chen et al., 2020; Cinar et al., 2022). In addition, there are combination effects in different types of innovation that complement each other to generate desirable outcomes (Buchheim et al., 2020).

2.2 Existing models of public sector innovation and limitations

Over the last two decades, numerous theoretical and empirical studies have been conducted on public service innovation. There remain variations in terms of focus. Some studies only focus on the types of innovation (Bugge & Bloch, 2016; Torugsa & Arundel, 2016; Chen et al., 2020), some on antecedents and types of innovation (Walker, 2014; Korac et al., 2017; Walker et al., 2015; Arundel et al., 2015) while very few on the antecedents, types and outcomes of innovation (De Vries, et al., 2016; Arundel et al.,2015). In the following paragraphs, some of these studies are reviewed.

The context's role is critical to drive innovation in the public sector. Cenar et al. (2020) have conducted a comparative study of the contextual variables and the types of innovations in Italy, Japan, and Turkey. All three countries are different in terms of the context – administrative, political, economic, technological, social, and temporal – that have varied implications for adopting the types of innovation. For example, in Italy, process innovation (e-government) has been most prominent and facilitated by the interplay of administrative, political, and temporal contexts in the e-government reform. Japan has balanced configurations of governance, process, systemic, social, new service, and conceptual innovations.

Nevertheless, governance innovations have been prominent and have interplayed with the challenging economic and temporal context of the financial crisis and austerity. In Turkey, the dominance of process and systemic innovation bodes well with the administrative, temporal, and political context of the e-government transformation program since 2003. It is also evident that a high economic growth rate and low level of technological capability enabled the implementation of process and systemic innovations.

De Vries et al.'s (2016) systematic literature review-based article is comprehensive and focuses on antecedents, types, and innovation outcomes. Four different antecedents, such as environmental antecedents, organizational antecedents, innovation characteristics, and individual antecedents, are identified and are connected to four types of innovation. The outcomes stemming from the types of innovation include effectiveness, increased efficiency, participation of the private sector, citizen participation, and increased customer satisfaction.

In their empirical study, Korac and Walker (2017) recognized socio-economic and political changes, central government mandate, and public and media pressures as critical factors driving organizational, service, marketization, and ancillary innovations in the Austrian local governments. The article does not focus on the outcomes.

Arundel et al. (2015) used the survey results of an investigation into many European countries. The authors use the results of an extensive survey of the innovation activities of European public administration agencies. The purpose was to ascertain whether systemic differences prevailed in how agencies innovate and the nature of these differences. The findings reveal that differences in the structure of governance, regulatory requirements, the organization of work, national culture, and organizational conditions have impacted how public agencies innovate. The study shows the outcomes of service and process/organizational innovation activities, including, among other things, better targeting of services, services to more or new types of users, faster delivery, increased user satisfaction, improved employee satisfaction, reduced cost, simplified procedures, etc. Differences in reaping benefits from innovations are also reported across European countries.

Hansen's (2011) empirical research explores the varying impacts of the antecedents on the implementation of different types of NPM implementation. The author differentiates between a neoliberal paradigm-led NPM (privatization, outsourcing, and free choice) and a generic managerial paradigm-led NPM (balance scorecard, management by objectives, total quality management, etc.) innovations. The study focused on what types of antecedents promote or impede the adoption and implementation of what type of NPM innovations. The findings indicate that environmental factors, particularly the political system and politics-management relations,

considerably impact the adoption. Managers who prioritize and intervene in politics show more significant success in NPM implementation. Apart from this, organizational factors, including the organizational size (the inhabitants in the municipality), the nature of activities (technical versus non-technical), leadership, managerial change agent, and so forth, have varying levels of impact on adopting and implementing NPM innovations. The study finds organizational size to be a very dominant antecedent.

Parahoo and Al-Nakeeb (2019) have conducted empirical research to ascertain the impacts of the antecedents on social innovation in the public sector in the United Arab Emirates. Some interesting findings are gleaned from the study. It identifies organizational and technological antecedents as enablers of social innovation. In addition, these technological and organizational factors enable social innovation through constant interactions with multiple actors in the innovation ecosystem. These organizational and technological factors support government entities to encourage citizen engagement and partnerships with nonprofit and private entities to design and implement social innovations.

Walker's (2007) empirical research in the English public organizational setting focuses on how diverse antecedents facilitate different types of innovations (service, organization, marketization, and ancillary) and how complementary relationships develop among the types of innovations. The study reveals some interesting findings. First, organic structures bode well with service and organization innovations, while some features of mechanistic structures are suitable for marketization and ancillary innovations. Second, a shortage of resources facilitates organization and marketization innovations as both are efficiency-oriented. Third, large organizations support service and organization innovations, while small

ones resort to ancillary innovations. Fourth, service need, an environmental antecedent, is suitable for service and ancillary innovations. Fifth, a high diversity of needs promotes organizational innovations but limits ancillary innovations. Marketization and organization innovations are impacted by changes in population and adopted in less-affluent contexts. Sixth, partnership innovations emerge in austere political environments. Hence, marketization innovation is widely adopted in this type of political environment. Finally, the author has developed a configuration framework that shows that "different combinations of organizational and environmental antecedents matter for innovation and that there are complex interrelationships between different types of innovation" (Walker, 2007, p. 608). In another study, Walker (2014) showed the influence of external (deprivation, wealth, and urbanization) and internal (organizational size) factors on the adoption of process innovation.

The political environment is featured significantly in numerous studies (Van Dijck & Steen, 2022; Lopes & Farias, 2022; Mu & Wang, 2022; Cinar et al., 2019). The support of elected officebearers (central or local) can either facilitate or impede the adoption and implementation of collaborative innovations. Van Dijck & Steen (2022) conducted qualitative research on four projects for socially vulnerable groups at the local level with the participation of different stakeholders, including citizens, non-governmental organizations, the private sector, and regional and federal government agencies. Elective representatives affect the project in different ways (positive or negative). These include providing funds (evident in all four projects), prioritization of the project on a political basis (evident in three projects), adjustment of project goals (evident in one project), connecting stakeholders (evident in one project), resolving stakeholder

conflicts (one case), resolving red-tapism (one case), and granting project legitimacy (two cases). In addition, the varying degrees of the effects of political involvement were noticed at different phases of the projects. Other studies (Lopes & Farias, 2022; Mu & Wang. 2022; Sorensen et al., 2020) found political support as a plus point for various collaborative innovations.

As discussed above, the review of existing literature provides valuable insights into the relationships between antecedents, processes, and outcomes of public sector innovation. However, certain limitations are gleaned from this review. First, most conceptual and empirical articles are based on Western countries' experiences. The non-Western setting remains absent mainly because of a lack of quality research on public sector innovation (Schomaker & Huck, 2022). Variations in the governance, economic, socio-cultural, technological, and demographic contexts are expected to affect innovations and outcomes. Second, there is minimal research on the dynamic relationships between the antecedents, innovations, and outcomes. Whatever is available, the relationship is not shown as interactive, given the linear nature of the available conceptual models. Third, there are discrete studies on the relationship between innovations and outcomes, but there is a lack of research linking the antecedents, innovations, and outcomes.

In short, it appears that the available literature on existing models of PSI reveals themes that group identified factors under different categories, such as internal and external factors, processes, and outcomes of PSI. Moreover, due to the limitations of the existing models, the current study aims to review the literature on various themes in an attempt to propose a dynamic model underpinning the interaction effects among internal and external factors, processes, and outcomes of PSI. The following sections present the relevant review of the literature.

3.0 Proposed framework and development of research propositions

This section develops a conceptual framework and presents research propositions with supporting literature for empirical research.

3.1 Linking external factors with processes of PSI

a. Socio-cultural and political forces and the management of PSI

Socio-cultural and political forces are essential factors in the innovation process. Both dimensions have dynamic interactive relationships. In typical liberal democracies, executive institutions dealing with the innovation process receive vital inputs from political actors, policy entrepreneurs, social institutions, and civil society (Parahoo & Al-Nakeeb, 2019; Pollitt & Bouckaert, 2011; Glor, 2021). Since individualism and impersonality are accepted societal norms, formulating and implementing innovative initiatives for public service provisions can follow impersonality. With the same token, since the rights of citizens are institutionalized, co-production between citizenry and management has become an accepted form of governance (Osborne et al., 2021a). Gender and education also enable PSIs (Demircioglue, 2020).

b. Globalization and competition and the processes of PSI

Globalization and competitiveness have triggered the propensity of PSIs to undertake innovations. All governments are now exposed to tumultuous changes and increased uncertainties. Public organizations must keep modifying innovation processes, reshaping their approaches of doing business, and improving motivation, creativity, and competitiveness in both domestic and global frontiers (Farazmand, 2009; Waheed et al., 2019; Vigoda et al., 2005; Ansell et al., 2023).

c. Economy and the Processes of PSI

Economic factors, including the level of development, the rates of growth, unemployment, poverty, economic diversifications, value for money in public expenditure management, the influx of foreign direct investment, and export competitiveness, impact significantly upon the innovation processes within the PSO (Walker, 2007; Farazmand, 1999; Buccheim, 2020; Cinar et al., 2022). Management and implementation mechanisms of PSI also determine to what degree the state would be able to achieve economic success in reducing employment and poverty, attracting foreign direct investment, and achieving export competitiveness (Mazzucato & Ryan-Collins, 2022).

Drawing upon the literature mentioned above, the current study proposes the following research proposition:

Research proposition 1: External factors such as socio-cultural and political forces, globalization and competition, and economic factors dynamically interact with the processes of public sector innovation.

3.2 Linking external factors with outcomes of public sector innovations

a. Socio-cultural and political forces and the outcomes of PSI

Extant literature has indicated different outcomes of PSI, such as efficiency, effectiveness, satisfaction, and trust of clients (Khalid & Sarker, 2019). However, public value creation has become a credible measure of performance in the public sector in recent years. According to Arundel et al. (2019), factors affecting public sector outcomes may include political actions that stimulate innovation, such as legislation, regulations, policy priorities, issues requiring immediate attention, and organizational restructuring.

In Amesho et al.'s study (2021), some governments face the challenge of managing innovation as a result of political changes or administrative and leadership changes in local governments. Alternatively, Kattel et al. (2014) explained how innovation outcomes affect institutional interactions, organizational capacity, and political authority. Tõnurist et al. (2017) explained the radical change in technology due to innovative practice causing a cumulative change in the socio-technical system.

b. Globalization and competition and the outcomes of PSI

Rapid globalization is critical in keeping nations and economies competitive regarding value creation in various fields, such as healthcare, education, transportation, energy, safety and justice, and urban planning. It can help by sharing high R&D expenditures, offering different knowledge sources, and overcoming rigid intellectual property protection culture in some sectors (Kankanhalli et al., 2017). On the other hand, depending on the nature of the PSI outcomes, political actors may recraft the strategy of negotiating with the forces of globalization (Jones, 2017).

Moreover, it leads to significant shifts in global markets (Amesho et al., 2021) and creates performance differences and competitive environment among firms, regions, and even countries (Clark and Guy, 1998).

c. Economy and the Outcomes of PSI

Governments consider innovation an engine of economic growth that enables resilience during economic fluctuations (Walsh & Winsor, 2019). The region with the lowest innovation capacity is the least able to cope with an economic crisis (Bristow & Healy, 2018).

The European Commission has supported several large PSI projects

because the public sector share of GDP in economically developed countries is estimated to be between 20 - 30% (Arundel & Huber, 2013).

Contemporary research on performance management also emphasizes the interactive nature of the different constituents of organizations. It has underscored the importance of performance data for the external constituents through the feedback loop (Moynihan & Ingraham, 2004). It is also essential to the positive or negative outcomes to provide avenues for learning and accountability of government executives to the broader external constituencies (van Acker & Bouchaert, 2018).

Drawing upon the literature mentioned above, the following proposition is proposed:

Research proposition 2: External factors such as political forces, globalization and competition, and the economy dynamically interact with the outcomes of public sector innovation.

3.3 Linking internal factors with processes of public sector innovations

a. Management and leadership and the processes of PSI

Many variables affect innovation, such as leadership commitment, organizational size, organizational commitment, lack of standard operating procedures, and regulatory mandate (Kusumasari et al., 2019). Leaders must be innovative to respond to crises and organizational direction changes. This idea is strongly supported by Van der Wal & Demircioglu (2020), highlighting that the socio-cultural context plays a role in the leadership–involvement relationship and proving that top managers and leaders significantly impact organizational innovation processes. Changes that happen because of innovation are a positive sign of continuous

improvement in the innovation processes (Torugsa et al., 2016). Sazzad et al. (2021) deliberated on solid versus weak political and bureaucratic leadership. Optimal results were obtained when strong political leadership was enmeshed with solid bureaucratic leadership. Critical roles played by leadership are also highlighted in other studies (De Vries et al., 2016; Lewis et al., 2018; Kruyen et al., 2020).

b. Resources availability and the processes of PSI

Damanpour (1991) and De Vries et al. (2016) viewed that slack resources (money, time, ICT facilities) are the significant organizational antecedents influencing innovation processes. Glor (2021) agreed that ICT provides new capabilities and, therefore, new ideas to the organizational environment. The degree of openness of ICT as an infrastructure may affect innovation processes positively.

While resource availability facilitates innovation processes, the latter also impacts the former. Vital insights derived from the formulation and implementation of innovations point out the feasibility of critical resources to attain the desired outcomes. Contemporary evidence of agile government highlights the need for such an interactive relationship between the availability of resources and the processes of innovation (Lee et al., 2021; McBride et al., 2022).

c. HR capability and the processes of PSI

De Vries et al. (2016) found that employee autonomy and empowerment, professionalism, creativity, job commitment, job satisfaction, shared perspective, and innovation acceptance affect the innovation process at the organization's individual level.

The empirical study by Al Zahrani (2012) showed that antecedents like organizational culture, incentives, leadership patterns, and employee participation, training, and development positively influence the PSI. The research illustrated the need to enhance the capabilities to achieve an appropriate degree of psychological empowerment of employees, which improves innovation process quality. According to Torugsa et al. (2016), public agencies and workgroups that innovate regularly have well-established risk management frameworks that allow managers to learn from failures and improve their capabilities.

Keeping in view the available literature, the following proposition is proposed:

Research proposition 3: Internal factors such as management and leadership, resource availability, and HR capability dynamically interact with the processes of public sector innovation.

3.4 Linking internal factors with outcomes of public sector innovations

a. Management and leadership and the outcomes of PSI

Tangible and intangible outcomes are generated through organizational antecedents, including leadership and organizational culture (Alalwan, 2023). According to Vigoda et al. (2008), top-level solid support raises the likelihood of innovations being adopted and implemented that eventually result in outcomes that can be either positive or negative (Kankam-Kwarteng et al., 2022; De Vries et al., 2016; Arundel et al., 2015; Torugsa & Arundel, 2016).

Waheed et al. (2019) discussed the importance of supporting employees with an innovative environment that allows new ways of thinking,

mental cognition, and perception and reflects directly on the innovation outcomes. Glor (2021) added that adopting a prizes and awards culture by the organization's top management helps improve innovation outcomes. According to Torugsa et al. (2016), complex innovations may inspire public agencies and workgroups to explore new ideas from various sources to boost their chances of innovation success. It is also evident that a proper mix of innovation types is likely to generate better outcomes (Buccheim et al., 2020). The outcomes of PSI may also facilitate and improve the governance and actions for effectively managing innovation through well-developed feedback, accountability, and the learning system (Janssen et al., 2017; van Acker & Bouchaert, 2018; Arundel et al., 2019).

b. Resources availability and the outcomes of PSI

Budgetary constraints and a lack of human resources, new technology, competitive abilities, and knowledge are identified as barriers to PSI that hinder reaping the most value from innovations (Arundel et al., 2019; Waheed et al., 2019). However, it is also evident that a lack of resources often prompts decision-makers to innovate and bring positive outcomes (Pollitt, 2010; Farazmand, 1999).

Governments could monitor PSOs' performance in achieving specific PSI-related outcomes. In case the outcomes are achieved, this provides the reason for allocating more resources to PSOs to ensure the availability of budget and sustain innovation performance (Nielsen, 2014; Bonomi Savington et al., 2019).

c. HR capability and the outcomes of PSI

Many human resources capabilities may affect the innovation outcomes. Employees' preparedness (Al Mheiri and Zaid, 2022) and

empowerment lead to the reduction of institutional barriers to creativity and the improvement of innovation outcomes (Demircioglu, 2018). Park & Jo (2018) and Van der Wal & Demircioglu (2020) revealed that proactivity, innovation environment, adequate reward structures, the adaptive capacity of employees, governance quality, and cultural values have positive relationships with the employees' innovative behavior that lead to positive innovation outcomes.

Satisfactory innovation outcomes encourage PSOs to continue implementing complicated innovations and boost their chances of success. It is done by enhancing the ability to manage and overcome challenges, recognizing the optimal idea sources for innovation, and building work environments that support individual and group creativity (Torugsa et al., 2016).

Keeping in view the available literature, the following proposition is proposed:

Research proposition 4: Internal factors such as management and leadership, resource availability, and HR capability dynamically interact with the outcomes of public sector innovation.

3.5 Linking processes of public sector innovation with outcomes

Mergel (2015) stated that different phases of innovation, such as idea solicitation, incubation, validation, and implementation, can result in outcomes including public awareness, public trust, accountability, increased inclusiveness, improved service delivery, economic development, new services, and new products. These outcomes can be embodied in public value creation (Meynhardt & Jasinenko, 2020).

Some researchers have also explored how innovation outcomes could influence the processes. Haug & Mergel (2021) showed the innovation processes-outcomes relationship. They showed that the innovation environment in PSOs creates public value by enabling transformation processes within PSOs. Employees engaged in innovation have changed their perspectives because they gain a better understanding of digital technology or are encouraged to try new methodologies like design thinking or experimentation (Janssen et al., 2017).

Keeping in view the available literature, the following proposition is proposed:

Research proposition 5: Processes of public sector innovation dynamically interact with the outcomes of public sector innovation.

3.6 Linking the external and internal factors of public sector innovation

Given that organizations operate as an open system, it is likely that there could be interaction effects among the external and internal factors. These factors may directly affect innovation processes and outcomes or generate interaction effects in determining their impact on innovations (Cinar et al., 2021).

Politics as an external factor may affect internal factors such as leadership and management. Arundel et al. (2019) discussed the interaction relationships between state politics and governmental organizational management. Public policies may influence PSI by incorporating strategic approaches to enhance PSI capacity.

Another internal factor, HR capabilities, can be influenced by globalization, which is considered an external factor. According to

Farazmand (1999, 2009), globalization has shaken the administrative system of all countries in the world. Without developing administrative capabilities, no state can aspire to enhance public service delivery in the age of dynamic change and environmental complexities. Governments striving for national competitiveness ensure resource availability to undertake innovative initiatives by PSOs. At the same time, effective resource utilization by PSOs enhances a government's overall national competitiveness (Bruce et al., 2019). Similarly, governments aiming for a high-growth economy invest in PSOs to provide the implementation mechanisms and delivery of public services efficiently and innovatively (Warner, 2010; Bentzen et al., 2020; Osborne et al., 2022). It also underpins the critical role of PSOs in achieving high growth rates, reducing unemployment and poverty, and improving foreign direct investment and export competitiveness (Mazzucato, 2016; Mazzucato & Ryan-Collins, 2022; Leyden, 2016).

Keeping in view the literature mentioned above, the following proposition is proposed:

Research proposition 6: External and internal factors of public sector innovation dynamically interact.

3.7 Proposed conceptual framework

Drawing upon the available literature and existing models of PSI, the current study proposes a dynamic model of PSI, as depicted in Figure 1. The model highlights the interaction effects among internal and external factors, processes, and outcomes of PSI. After the review of extant literature, the model identifies the external and internal antecedents. External antecedents include globalization and competition, national economic conditions, and socio-cultural and political dynamics. Management and

leadership, resources, and HR capability are the internal factors. The model's uniqueness rests on a two-way interaction between the external and internal antecedents. Similar interactions are shown here between the antecedents and processes, processes and the outcomes, and antecedents and outcomes. Extent review identifies four outcomes of PSI.

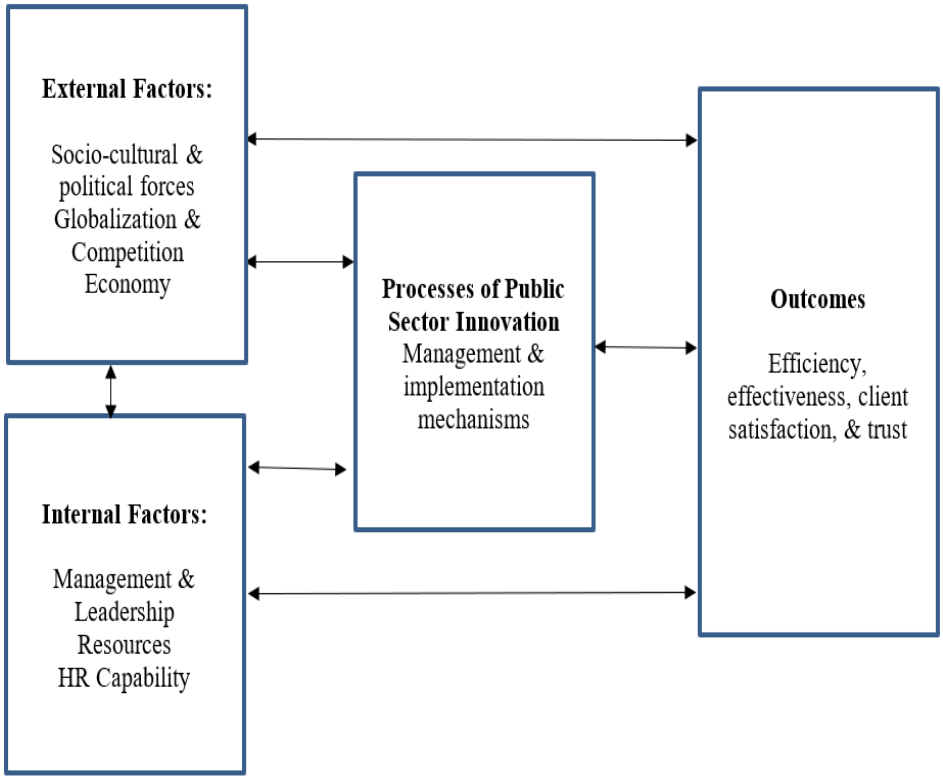

Figure 1: Proposed Conceptual Model

Discussion and conclusion

The 1980s heralded a new era of public management triggered by globalization and tectonic socio-economic changes, the digitalization of

society, and the impact of the COVID-19 pandemic (Osborne et al., 2021b). The dominant practices of the old mode of public sector management have been supplanted by the new ones, popularly known as innovations. There is a growing literature – both theoretical and empirical exploring diverse aspects of PSI, including the antecedents, types, and outcomes. Many studies have investigated the impact of different kinds of antecedents – both external and internal – on the management and implementation of different types of innovations (Van Dij & Steen, 2022; Korac et al., 2017; Chen et al., 2020). On the other hand, some studies have focused on the types of innovations (Bugge & Bloch, 2016; Torugsa & Arundel, 2016), while only a limited number of studies have delved into the linear relationship between the antecedents, processes, and the outcomes (De Vries et al., 2016). Valuable insights are gleaned from the existing literature. There is rarely any study that comprehensively analyzes the antecedents that impact the processes that lead to the outcomes of innovations. In addition, the studies mostly show linear relationships between the dimensions. At the same time, it is essential to know how these dimensions – antecedents, processes, and outcomes - interact with each other. The role of feedback and accountability is conspicuously absent in most studies (van Acker & Bouchaert, 2018). However, with the increased pace of digitalization, the use of big and open-lined data, and the resulting datafication of society, it is essential to enhance the efficiency and effectiveness of numerous public services and sustain continuous improvement by having a dynamic interactive system in place.

The current study adds to the literature on PSI in two ways. First, it proposes a dynamic model of PSI that elucidates the interplay among internal and external factors, processes, and outcomes of PSI. It potentially

serves as a springboard for conducting future empirical research on PSI in different contextual settings. Second, it fundamentally outlines how governments in various regions might foster innovation to become more competitive.

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العوامل المؤثرة والعمليات والنتائج للابتكار الحكومي: نموذج تفاعلي

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ملخص البحث:

الابتكار في القطاع العام يعد نموذجًا إداريًّا يقدم إجراءات ويطرح أفكارًا جديدة في مواجهة التحديات التي تواجهها الحكومات

وقد أصبحت الحكومات في جميع أنحاء العالم تعتمد على ابتكارات القطاع العام لتحقيق بعض النتائج الموضوعية، بما في ذلك الكفاءة والفعالية والعدالة الاجتماعية والمساءلة وغيرها من النتائج التي تسعى المؤسسات لتحقيقها وتضعها نصب عينيها. يتزايد الاعتراف بأن تحقيق النتائج الجوهرية يتطلب إصلاحًا للنماذج النظرية الحالية لابتكار القطاع العام؛ إذ تظل النماذج الحالية إما متسلسلة في طبيعتها أو توفر رؤية محدودة للتفاعلات بين العوامل المؤثرة والعمليات ونتائج الابتكارات في القطاع الحكومي. الغرض من هذه الدراسة هو سد هذه الفجوة من خلال اقتراح نموذج ديناميكي مفاهيمي لابتكار القطاع العام الذي يأخذ في الاعتبار الترابط بين العناصر الداخلية والخارجية مع عمليات ونتائج ابتكارات القطاع العام

وقد تناولت هذه المقالة ثلاثة عوامل مؤثرة خارجية، وهي: القوى الاجتماعية والثقافية والسياسية ، والعولمة والتنافسية ، والعوامل الاقتصادية. بينما تم حصر العوامل الداخلية في ثلاثة عوامل مؤثرة تضمنت: الإدارة والقيادة ، وتوافر الموارد ، وقدرة الموارد البشرية في مؤسسات القطاع العام

الكلمات الدالة: ابتكار القطاع العام، المؤثرات البيئية، المؤثرات الداخلية، العمليات الإدارية

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