

# Chapter 13

## Digital Public Intrapreneurship and Digital Public Entrepreneurship

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### ABSTRACT

This chapter provides an examination of the landscape of entrepreneurship within public administration, focusing on the integration and implications of digital technologies. It begins with the historical evolution of public sector entrepreneurship, identifying milestones and shifts towards more inclusive and innovative practices. The chapter transitions to the emergent field of digital entrepreneurship and intrapreneurship, underscoring the transformative potential of digital technologies in public organizations. The chapter presents concepts, theoretical frameworks, and definitions for understanding the dynamics of digital entrepreneurship within the public sector. Emphasis is placed on the roles of digital public entrepreneurs and intrapreneurs, whose efforts are pivotal in navigating challenges and seizing the opportunities from the digital era. The chapter concludes by presenting the strategic importance of fostering a culture of innovation and adaptability within public institutions, aiming to enhance service delivery and public value creation in an increasingly digital world.

### KEYWORD

Public Administration, Digital Entrepreneurship, Digital Intrapreneurship, Employee-driven innovation, Digital Technologies, AI, Public Sector Digital Transformation

### INTRODUCTION

In an era of digitalization, public sector organizations are increasingly recognized as pivotal actors for innovation and transformation. Academics are advocating for the development of new theoretical approaches taking those changes into account (Hinings et al., 2018). This chapter sets out to explore the dynamics of digital public intrapreneurship and digital public entrepreneurship, key processes reshaping the landscape of public sector innovation against a backdrop of technological upheaval and evolving societal needs.

On one hand, digital public intrapreneurship refers to an unsolicited use of digital technologies and innovation methods by public servants at any level within public organizations to create public value (Moore, 1995; Bozeman, 2007; Talbot, 2009; Benington, 2011; Cui & Osborne, 2021). On the other hand, digital public entrepreneurship refers to any entrepreneurial action initiated in the public sector by a public servant in a management position based on its organizational strategy. Digital public entrepreneurship aims to leverage opportunities presented by digital technologies and innovation to create value for the public. Both phenomena (digital public intrapreneurship and entrepreneurship) are driven by a combination of technological, motivational, social, and institutional factors that enable and constrain the potential of public innovation in the digital age.

This chapter, aims to demonstrate that entrepreneurship and intrapreneurship within the public sector can no longer be understood solely as a management role but as a collective and cooperative effort within the organization. This chapter will provide to scholars and practitioners in the field of digital government a better understanding of this orientation to foster digital innovation and to seize technological opportunities for the benefit of the public and the organization. This chapter is structured to meet three main objectives.

Firstly, it aims to provide an overview of entrepreneurship in the context of public administration, covering its historical evolution, current implementations, and potential future directions. This foundation is intended to facilitate a comprehensive understanding of entrepreneurship's significance and effects within this field.

Secondly, the discussion extends to an examination of digital entrepreneurship and intrapreneurship in public organizations, focusing on the integration processes of digital innovations, the challenges encountered, and the opportunities available. This section highlights how these practices contribute to the transformation of public service delivery and the internal dynamics of organizations.

Finally, the chapter provides definitions and theoretical frameworks for those interested in the digital government area, aiming to deepen the analysis of entrepreneurial activities in this sector. It specifically focuses on the identification and description of digital public entrepreneurs and intrapreneurs, offering insights into the innovative concepts that are pivotal for exploring digital entrepreneurship in the public sector. Central to this exploration is the theoretical approach of these concepts, informed by a critical review of existing literature and augmented by contemporary empirical insights.

## **THE ENTREPRENEURIAL SPIRIT IN PUBLIC MANAGEMENT**

### ***The Roots of Public Entrepreneurship***

According to Moe (1984), New Public Management (NPM) began to emerge when the neoclassical movement addressed two basic mechanisms of social choice: markets and voting. Moe (1984) noted that hierarchy was left relatively unaddressed in public administration literature, leaving the decision-making process of public organizations in relation to getting optimal outputs a black box. To better understand how to optimize public organizations to get the best outputs from citizens' input, he argued to apply an economic standpoint mobilizing contractual relations by using the principal-agent model (Ross, 1973; Spence & Zeckhauser, 1971; Jensen, 1983). Moe concluded that a contractual paradigm (Alchian & Demsetz, 1972) could be applied to political science and public administration from which a new analytical framework would emerge to better understand public bureaucracy. In this framework, citizens acted as principals and politicians and bureaucrats as agents mandated to represent them. Politicians would then mandate new agents (public servants) to represent them.

This raised arguments to decentralize further the decision-making process in public organizations by empowering managers to make decisions at a more operational level. To make this possible, Moe tackled the phenomenon of shrinking behaviour citing Williamson's core concepts (1975) of adverse selection and moral hazard that could negatively impact the contractual model by creating information asymmetries between the two actors. Decentralization should therefore aim to balance these asymmetries by delimiting a clear contract between the principal and its agents to create a win-win situation and prevent abuses and misrepresentation of the principals' interests in the relation.

This orientation towards the contractual paradigm opens the application of entrepreneurship in the public sector by suggesting that innovation and efficiency can be facilitated by contract agreements, redefining relations between citizens, politicians, and public servants. It also renews the understanding of input/output optimization by emphasis on flexibility, accountability and performance, all key principles of entrepreneurship in public management.

### **Managerialism and Public Entrepreneurship**

Moe (1984) also underpinned that public organizations have inherently different motivations from the private sector. This was the case for financial motivators (i.e., profit or bonuses) that were deemed unsuitable for applying the contractual model in public organizations for which the author suggested alternative control mechanisms such as discretionary budget allocation (generation of slack resources) or reputational metrics. The key notion that Moe (1984) raised was that managers should be empowered to achieve their contracted objectives to an optimal outcome through a set of objectives that would be measured to ensure their accountability and responsible use of given resources by the public.

In the United Kingdom, Hood (1991) built on this notion and associated seven principles to NPM. These principles include hands-on professional management in the public sector, explicit standards and measures of performance, a greater emphasis on output controls, shifting towards disaggregation of units within the public sector, fostering competition, adopting private-sector management practices, and focusing on discipline and parsimony in resource use. Each principle represented a shift from traditional public administration towards a more efficiency-driven, market-oriented approach. Most notably, to better understand, manage and control the black box depicted by Moe (1984), Hood raised the importance of achieving optimal results through diffusion of power through contractualization and privatization of certain governmental activities moderated by using performance measurements to ensure responsible use of allocated resources. Managerialism became a key concept in NPM, where the manager played a pivotal role as an actor of change and entrepreneur. The author also raised that the NPM paradigm grew in popularity because of socio-economical events, notably computer age and the 80s debt crisis.

In the United States, Osborne & Gabler (1993) presented some empirical evidence of the application of this model in many cases taken from local governments. Many of the cited examples demonstrated how public organizations were to *steer instead of rowing* in complex technological and socio-economic situations (Osborne & Gabler, 1993, p. 28). Using Drucker's (1968) premise that governance was key in this effort, the authors argued that public, private and non-profit organizations should work together capitalizing on their proprietary strengths to compensate for their respective weaknesses. Osborne & Gabler (1993) observations stressed the importance that public organizations act as change catalysts, encouraging local decision-making authorities to develop new services or new modalities for those services by working in a collaborative network with third-sector organizations, citizens, and private sector businesses to rethink or improve public service delivery. They brought forward the idea that Governments and decision-makers should act as entrepreneurs by mobilizing actors to achieve their goal to deliver services to the citizens, notably through networking and innovation. Through this, they positioned public entrepreneurship as a practice-based approach.

### **Limits of New Public Management**

The NPM paradigm is not without criticisms and debates within Public Administration scholars. A good example of such polarization resides in the arguments between Borins (1995a; 1995b) and

Savoie (1995a; 1995b). The series of articles published in the Canadian Public Administration reflects tensions surrounding its application and pertinence in public administration.

At the beginning, Savoie (1995a; 1995b) criticizes NPM for its excessive reliance on the superiority of private sector practices when applied to public administration. He contended that NPM was fundamentally flawed because it misunderstood the essential differences between public and private sectors, implying that NPM leads to a devaluation of public sector values in favour of private sector efficiency and entrepreneurship. Savoie's critique also referred to the idea that NPM simplistically transfers responsibility and accountability from politicians to public managers, reducing governmental accountability and potentially complicating citizen engagement with government services due to a market-oriented approach that replaces the citizen with the consumer.

On the other hand, Borins (1995a; 1995b) defended NPM as a necessary evolution within public administration that does not try to copy private sector methods in entirety but rather to incorporate flexibility, innovation, and efficiency into public sector management. Borins highlighted the empirical evidence of successful innovations within the public sector fostered by NPM, advocating for a more balanced view that recognizes the potential for public sector managers to learn from private sector strategies while adapting them to the unique context of public service delivery. He stresses that NPM encourages a strategic approach to governance that leverages the strengths of both public and private sectors to enhance service quality, managerial autonomy, and employee morale which was in line with Drucker (1968) and Osborne & Gaebler's (1993) perspective of NPM. Finally, Borins argued that to be able to capture empirical evidence of the benefits of public entrepreneurs, public administration researchers should aim to adopt a different onto-epistemological lens and design research using methodologies that would be able to capture the phenomena at its root: the public servant.

Following his assumption, Borins (1998; 2001a; 2001b) demonstrated that middle managers and frontline staff were frequently initiators of innovation, being close to problems and opportunities that arise from their interactions with operations. Borins found that their actions are proactive responses to internal problems stimulated by changes in public organizations environments, mainly opportunities created by the development of new information technologies. Borins (2002) also found that bottom-up innovations were more frequent than believed and was often led by informal leaders that needed to compose with the nature of a moderating relationship originating from the political leadership, at the top of the organization. Borins (2014) went on to recommend that public organizations support those "local heroes"; to accept the process of failure associated with innovation; to promote and foster communities of practice at the front-line level of government organization and to support awareness of opportunities using performance management systems as a problem-solving prompter for public servants (Borins, 2014, pp. 31-32).

### ***Entrepreneurship and New Public Governance***

In public administration literature, researchers continue to emphasize the importance of entrepreneurial spirit, and the key role that public sector employees play in driving innovation (Hartley et al., 2013). This perspective, New Public Governance (NPG), shifts away from the focus of Public Administration (PA) and New Public Management (NPM) (Bellone & Goerl, 1992; Stoker, 2006).

First, NPG represents a significant evolution from PA, characterized by the predominance of accountability, conformity, and procedural governance, anchoring entrepreneurship within a rigid framework. Unlike its predecessor, NPG champions a culture of collaboration and co-delivery of services with citizens, placing a strong emphasis on public-private partnerships (Casady et al.,

2020). This paradigm shift empowers employees across all levels of public sector organizations to embrace their roles as innovators, actively seeking and capitalizing on opportunities to enrich the public domain.

Building on the concept of Public Value Management (PVM), scholars like Meynhardt & Diefenbach (2012) suggest that while New Public Management (NPM) did support entrepreneurial initiatives, its true aim was to generate public value, echoing the sentiments of numerous other scholars (Moore, 1995; Bozeman, 2007; Talbot, 2009; Benington, 2011; Cui & Osborne, 2021). NPG also expands on NPM by bringing not only the economical aspect of entrepreneurship in line, but also a more philosophical vision of what benefits can be generated through decision-making (Smith, 2004; Williams & Shearer, 2011). In this paradigm, the individual manifesting entrepreneurial spirit is expected to be creative, ingenious, proactive, demonstrating autonomy and expertise in its practice (Moore, 1995; Williams & Shearer, 2011).

Despite the progressive ethos of NPG, instilling an entrepreneurial spirit within public sector employees encounters notable challenges, primarily due to the nuanced dynamics of informal collaboration. This is especially true among Street-Level Bureaucrats (SLBs) (Lipsky, 2010; Cohen & Cohen, 2023), whose day-to-day interactions and decisions are pivotal to public service delivery. The complexity and importance of these informal collaboration mechanisms, which often operate in the shadows of formal structures, cannot be overstated. They are essential for fostering cross-functional and cross-jurisdictional cooperation (Cohen & Cohen, 2023), enabling a more flexible and adaptive approach to service delivery and innovation in response to the dynamic social and technological environment faced by public organizations today.

This chapter will delve into the interplay between intrapreneurship and entrepreneurial efforts within the public sector, highlighting the critical role of informal mechanisms in facilitating this transformative shift in public administration. This exploration is particularly pertinent to understanding how digital technology adoption and innovation are accelerated by these informal mechanisms, shedding light on their indispensable role in driving the public sector's digital transformation journey.

### ***Entrepreneurial spirit, Innovation and Digital Technologies***

One key notion that stems from this chapter section is that changes in the technological environment of public organizations are at the core of stimulating public sector innovation through the opportunities generated by such changes. Public servants at all levels can act as catalysts of change by leveraging innovation to improve or rethink public service delivery through collaboration with different actors in creating public value.

This is especially true with emergent digital technologies. At the 2023 Government of Canada Data Conference (2023a), Professor Yoshua Bengio discussed various difficulties public organizations encounter when adopting digital innovations, especially artificial intelligence (AI). He particularly criticizes the slowness of the public sector to adopt this type of innovation which he deems has several advantages. He argues that the urgency stems from their responsibilities in key societal sectors such as health, security, or the economy. According to him, the lack of risk taking, possibilities for experimentation and autonomy of actors in the management of projects are factors harmful to the modernization of public institutions through AI. He also notes that the important role of specialized public servants in this endeavour and highlights that there are few incentives for them to innovate in that regard.

These remarks clearly reflect the delicate position in which public organizations find themselves given their accountability for the failure of AI projects in terms of fairness and

transparency (Schiff et al., 2021) and pressures from society (van Noordt & Miscuraca, 2020; Schaefer et al., 2021).

The next section will explore some social-economic and technological changes that are revolutionizing public organizations environments and generating a considerable number of digital opportunities to be leveraged by entrepreneurial employees in the public sector.

## **PRESSURES AND OPPORTUNITIES FROM THE SOCIO-ECONOMIC AND TECHNOLOGICAL ENVIRONMENTS OF PUBLIC ORGANIZATIONS**

### ***Industry 4.0, 5.0 and Society 5.0***

Society 5.0 phenomenon advocates a super-intelligent society through the rapid adoption of new technologies (Deguchi & Karasawa, 2020) and Industry 4.0 aims to integrate new technologies into business processes at an accelerated pace (Xu et al., 2018). For some authors, Industry 4.0 represented the fourth Industrial Revolution (Lasi et al., 2014; Xu et al., 2018). Conversely, Industry 5.0 (Nahavandi, 2019) represents a progression from Industry 4.0. It seeks to augment and refine the technologies and methodologies established by its predecessor, showcasing its emergence within a remarkably short span, less than a decade, highlighting a rapid evolution in industrial paradigms (Michulek & Gajanova, 2023).

Table 1 below summarizes the main concepts of those three phenomena and their implications on different facets surrounding impacts and pressures for change on public organizations in the process of adoption/implementation of new digital innovations:

**Table 1** Main Aspects of Industry 4.0, Industry 5.0 and Society 5.0

<b>Aspect</b>	<b>Industry 4.0 (Lasi et al., 2014; Xu et al., 2018)</b>	<b>Industry 5.0 (Nahavandi, 2019; ElFar et al., 2020; Maddikunta et al., 2022)</b>	<b>Society 5.0 (Deguchi et al., 2020)</b>
<b>Focus</b>	Automation, data exchange, IoT, and manufacturing technologies.	Balance between automated/manual work, human-centric, collaboration between humans and machines.	Integration of cyberspace and physical space for societal efficiency, equity, and comfort.
<b>Technologies</b>	Cyber-physical systems, IoT, cloud computing, cognitive computing.	Builds on Industry 4.0, adds human-machine interaction tech like robots, AI for decision-making, augmented reality.	AI, robotics, IoT, big data, and technologies that blend digital and physical realms.
<b>Goal</b>	Improve productivity and efficiency through automation and data exchange.	Personalized products, job satisfaction, sustainable development aligning with social needs and environmental concerns.	Addressing social challenges, improving quality of life, and creating a human-centric society.
<b>Human Role</b>	Humans as supervisors or data analysts, overseeing automated processes.	Humans as collaborators, integral to creative and decision-making processes.	Humans as central decision-makers, beneficiaries, and ethical guides in technology use.
<b>Sustainability</b>	Efficiency can lead to sustainability, but not a primary focus.	Core components, focusing on responsible production, reduced waste, and the circular economy.	Emphasizes sustainable development, environmental care, and social well-being.
<b>Customization</b>	Some customization limited by automation and mass production.	High level of customization, focusing on craftsmanship and tailored products.	Focus on meeting individual needs and societal challenges, personalization in social services.

Industry 4.0 and 5.0 concepts are not without critics. Academic discourse highlights the lack of a universally acknowledged definition (Pereira & Romero, 2017; Elnadi & Abdallah, 2023), casting a veil of ambiguity over the concept and complicating its implementation. Moreover, the

predominant focus on technological aspects may eclipse the imperative roles of human ingenuity, organizational ethos, and extensive socio-economic factors (Horváth, & Szabó, 2019; Sony, 2020). This technological determinism is critiqued for potentially oversimplifying the intricacies inherent in the integration of disparate systems and technologies, thereby neglecting considerations pertaining to employment, skill sets, and social dynamics (Sony, 2020; Elnadi & Abdallah, 2023). Even if Industry 5.0 partially addresses some of Industry 4.0 problems, there is still a possibility that the introduction of more human-centred and sustainable approaches might not be fully implemented (Pizoń et al., 2023).

Recognizing these critics, through entrepreneurial spirit, public organizations may be able to leverage the opportunities offered by these industrial upheavals, ensuring that technological progress is concomitant with Industry's 5.0 human-centred development, sustainability, and the equitable distribution of benefits through the creation of public value. This refined comprehension prompts a shift from perceiving Industry 4.0 as a deterministic trajectory to regarding it as a dynamic arena for innovation, adaptation, and conscientious expansion in concert with the private sector, notably through the emergence of Industry 5.0.

The evolution from Industry 4.0 through Industry 5.0 combined with Society 5.0, despite its debates, presents unprecedented opportunities for public entrepreneurs and intrapreneurs to lead transformative initiatives by actively seeking opportunities to engage in a dynamic and collaborative environment. This could prompt public entities to lead by example in demonstrating how to leverage technology for the greater good. The next section will explore how AI, as a disruptive technology, presents novel opportunities that could be leveraged by entrepreneurial actors within public organizations and how this can reshape their approach in their endeavours, enabling these organizations to adeptly navigate the rapid pace of technological change and mitigate external pressures.

### ***The Importance of Artificial Intelligence as a Disruptive Technology***

One important technology that generates considerable opportunities at the core of those phenomena is AI. For the purpose of this chapter, some definitions will be provided for the reader to establish common understanding and to clarify this concept.

AI is defined as "the capability of a computer system to show humanlike intelligent behaviour characterized by certain core competencies, including perception, understanding, action, and learning". (Wirtz et al., 2019, p.599). It is composed of three main categories: artificial narrow intelligence (ANI); artificial general intelligence (AGI) and artificial super intelligence (ASI) (Wirtz et al., 2019).

AI systems (AIS) are, in turn, systems "designed by humans that, given a complex goal, act in the physical or digital dimension by perceiving their environment through data acquisition, interpreting the collected structured or unstructured data, reasoning on the knowledge, or processing the information, derived from this data and deciding the best action(s) to take to achieve the given goal." (European Commission, 2019: 36).

Earlier debates in innovation literature were questioning AI's disruptive or incremental nature (Christensen, 1997; Wessel, 2016; Plantec et al., 2022). In their systematic literature review on disruptive technologies, Păvăloaia & Necula (2023) found that AI is now the spearheading disrupter in the transition from Industry 4.0 to Industry 5.0. AI, combined with technologies from Industry 4.0, allows for the emergence of pivotal technologies such as generative AI (Bukar et al., 2024), AI of Things (AIoT) (Cukier, 2019) and intelligent robots (Hu & Ye, 2024). Disruptive innovations, like AI, are characterized by the introduction of a high degree of novelty that

revolutionizes previous ways of doing things without the path to this revolution being particularly evident. This type of innovation often leads to several challenges, but also many opportunities (Tushman & Anderson, 1986; Teece, 2010) that would lead to rebuilding industry and society (Păvăloaia & Necula, 2023).

With it, AI brings considerable opportunities arising from private sector innovation, but also pressurize the public sector to change their practices, procedures, and routines. The disruptive potential of AI could enhance public organizations efficiency, yet the public sector's innate characteristics often discourage the adoption of such innovative technologies that are AI and AIS.

To be able to understand and leverage these opportunities, new skills and knowledge must be developed and assimilated by public organizations to adapt to their environments. Resources competent with AI is currently lacking in the public sector (Wirtz et al., 2018; Chen et al., 2019; Mikalef et al., 2019; Pencheva et al., 2020; Zuiderwijk et al., 2021; Schaefer et al., 2021; Schedler et al., 2021), contributing to organizational inertia within public organizations by limiting their potential to adapt to their environment (Cuillerier et al., 2023).

This short exploration of these phenomena brings to light that public organizations must attempt to keep up with changes in their environment despite their bureaucratic nature often characterized by a lack of responsiveness to their internal and external environments. This particularity of the public sector can lead to the slowness and complexity of the adoption of AI and advanced digital technologies, despite this period of technological upheaval where multiple actors are demanding increasingly efficient citizen services (Cuillerier et al., 2023).

The entrepreneurial spirit, as seen in the NPM and NPG paradigms, can be effective in navigating through such complex technological advancements and bureaucratic settings. This set of new opportunities could be leveraged by public servants and public organizations to innovate as demonstrated by Borins. This shift in the technological and socio-economic environments brings with it some new premises to reexamine how public entrepreneurship could evolve in the face of these revolutions, notably by leveraging intrapreneurship in the public sector with a set of digital skills, abilities, and knowledge.

This chapter, argues that to better understand how public entrepreneurship can facilitate adoption of digital innovation in public organizations, it is first necessary to define organizational dynamics of entrepreneurship within public organizations to get a better epistemological lens to study these phenomena. This will be achieved mainly by developing core concepts and notions of entrepreneurship in public organizations. The first step will be developed in the next section by conceptualizing the dynamics between two distinct levels of entrepreneurial activities within the organization: the corporate entrepreneurial and the corporate intrapreneurial levels in business administration literature to expand further this exploration to public organizations.

## **CONCEPTUALIZING ENTREPRENEURIAL ORGANIZATIONAL DYNAMICS**

The entrepreneurial spirit emerges as a force propelling innovation that can cut through bureaucracy and red tape, while potentially influencing organizational inertia. McNeely & Hahn (2014) stated that the adoption of advanced digital innovations, such as AI, requires expertise and deep knowledge of technological and organizational processes. In the organization, employees are the main drivers of organizational processes, which is why the organization must promote their ability to innovate and their learning to better manage them (Kaplan & Norton, 1996; Borins, 2002). In this sense, several authors mention that internal leaders in public administrations are necessary to counter the inertia created in the digital innovation adoption process. They describe these leaders



as innovative, dynamic, pro-experimentation, risk-tolerant, transformational, motivating employees to change and act as catalysts for collaboration (Kuziemski & Misuraca, 2020; MacCarthy & Propp, 2021; van Noordt et al., 2020; Da Costa & Moniz Pereira, 2023).

As it was explored in the previous section on the entrepreneurial spirit in the public sector, these characteristics are found in the practice of entrepreneurship within public organizations. The following section of this chapter will focus on actors displaying an entrepreneurial spirit within public organizations, specifically targeting managers and employees. To better get a grasp of the distinction and importance of each level those actors are evolving in, a review of literature surrounding the differences between them will be presented starting with the concepts of corporate entrepreneurship and corporate intrapreneurship firmly established in business administration literature. This will help to set a basis for subsequently exploring the practice of entrepreneurship in the public sector and its counterpart, public intrapreneurship. Finally, a description of the characteristics of the intrapreneurial activity in the public sector will be given, as well as a framework encompassing different strategies and actions that these actors operating at the individual level employ in order to achieve their objective: improving the quality of public services and creating value for citizens.

### ***Corporate Entrepreneurship and Intrapreneurship in Business Administration***

Business administration literature can help conceptualize and mapping dynamics of entrepreneurial behaviours within organizations to further explore their presence in the public sector. Two concepts of importance to do this exercise are corporate entrepreneurship and intrapreneurship. This section will provide definitions of these concepts as a basis to explore similarities and differences in public organizations.

Corporate entrepreneurship will be defined as:

*“A Set of processes, behaviours, and attitudes at the organizational level to mobilize innovative employee behaviours in its strategy with the aim of exploiting business opportunities and creating value for the organization”* (Zampetakis & Moustakis, 2007; Amo, 2010; Pinchot & Pinchot, 2016; Wieth-Köprich et al., 2017; Blanka, 2018; Taylor, 2018; Piecuch & Szczygiel, 2021).

This concept therefore represents the various means by which organizations will channel the entrepreneurial behaviours of employees with the purpose to exploiting them in its strategy. It aims to achieve a competitive advantage by attempting to exploit the business opportunities that can be generated through employees in the organization.

Corporate intrapreneurship originates from a different level of the organization, but also manifests itself differently. Pinchot (1985) was one of the first to focus on the phenomenon of intrapreneurship at the employee level. He describes intrapreneurship as “an action originating from within an organization and taking root in the creative behaviour of the employee” (Pinchot 1985, p. ix). The concept of corporate intrapreneurship which places the employees and their behaviour as a field of study was intertwined in the literature with that of corporate entrepreneurship (Taylor, 2018; Piecuch & Szczygiel, 2021). Subsequently, several authors looked again at the individual aspect of intrapreneurship in order to distinguish it from the concept of corporate entrepreneurship mainly, by its level of analysis and its subject of study. Corporate entrepreneurship has for subject of study organizational strategy applied by employees in management positions. It emanates from the top of the hierarchy to the bottom. On the contrary, corporate intrapreneurship comes from individual employees’ unsolicited initiatives from the bottom to the top of the organization.

Table 2 below summarizes the main research findings on corporate entrepreneurial behaviours, according to these definitions:

**Table 2** Study of the Levels of Corporate Entrepreneurial Behaviours

Field of Study / Organizational Context	Authors	Methodology	Main Conclusions
Corporate intrapreneurship / private sector	de Jong, Parker & Wu (2011)	Quantitative (questionnaire – 189 participants)	<ul style="list-style-type: none"> <li>- Observable behaviour at any level of the organization;</li> <li>- Middle-aged individuals are more likely to demonstrate the behaviour;</li> <li>- High academic education is associated with the manifestation of behaviour;</li> <li>- Behaviour stimulated by learning opportunities;</li> <li>- Behaviour characterized by risk taking, innovation, autonomy and proactivity;</li> <li>- Behavioural objectives are the creation of value through the exploitation of business opportunities</li> </ul>
Corporate intrapreneurship / private sector	Amo (2010)	Qualitative (interviews) and case study	<ul style="list-style-type: none"> <li>- Need to study organizational intrapreneurship separately from organizational entrepreneurship by the source of the manifestation of behaviour (from bottom to top);</li> <li>- Description of individual characteristics of the intrapreneur when faced with organizational resistance to change with regard to innovation (proactivity, education, incentives and hierarchical situation);</li> <li>- Need to further study the interaction between the manager and the intrapreneur and its influence in the success or failure of the innovation process.</li> <li>- Covariance of intrapreneurial behaviour and the organization's orientation towards innovation</li> </ul>
Corporate intrapreneurship / private sector	Bosma, Stam & Wennekers (2010)	Quantitative (questionnaire in 11 countries)	<ul style="list-style-type: none"> <li>- Less than 5% of employees are intrapreneurs;</li> <li>- Behaviour characterized by personal risk taking, autonomy, creativity and innovation;</li> <li>- Observable behaviour at the global level;</li> <li>- Manifestation of behaviour depends on the organizational context</li> </ul>
Corporate intrapreneurship / private sector	Rigtering & Weitzel (2013)	Quantitative (questionnaire – 176 participants)	<ul style="list-style-type: none"> <li>- Intrapreneurial behaviour depends indirectly on the innovative orientation of the organization, but also on personal initiatives of employees (organizational and individual factors);</li> <li>- Trust in the immediate superior plays an important role in the manifestation of innovative and proactive behaviour</li> </ul>
Corporate intrapreneurship / private sector and public sector	Gapp & Fisher (2007)	Qualitative (action research)	<ul style="list-style-type: none"> <li>- Observation of the effects of intrapreneurial action at two organizational levels: <ul style="list-style-type: none"> <li>o Micro – direct improvement of products/services contributing to the success of the company in the short and long term;</li> <li>o Macro – Ability to guide company strategy and improve the organizational decision-making process</li> </ul> </li> <li>- Main observed characteristics of intrapreneurial behaviour: innovation, autonomy, orientation towards problem solving, openness towards the environment, creativity and pragmatism, positive influence and dynamics of the work environment, persistence, collaboration and flexibility</li> </ul>

Corporate intrapreneurship / private sector and public sector	Moriano, Molero, Topa, Lévy & Mangin (2014)	Quantitative (questionnaire – 186 participants)	<ul style="list-style-type: none"> <li>- Importance of the relationship between the immediate manager and the intrapreneur;</li> <li>- Transformational leadership has a positive influence on the manifestation of intrapreneurial behaviour while transactional leadership negatively influences employee behaviour</li> </ul>
Corporate entrepreneurship and intrapreneurship / private sector	Aina & Solikin (2020)	Literature Review	<ul style="list-style-type: none"> <li>- Observation of the need to distinguish corporate entrepreneurship and intrapreneurship;</li> <li>- Observation of a positive influence (growth, increase in income, employee engagement), but also negative (potential loss of productivity, risk associated with employee behaviour) of these practices in the organization;</li> <li>- Requires structuring strategies in the organization to exploit the benefits and minimize the risks associated with intrapreneurial and entrepreneurial practice</li> </ul>
Corporate entrepreneurship and intrapreneurship / private sector	Piecuch & Szczygiel (2021)	Qualitative (questionnaire – 320 participants)	<ul style="list-style-type: none"> <li>- Corporate intrapreneurship is the basis of Corporate entrepreneurship;</li> <li>- Observation of the necessary distinction between corporate intrapreneurship and entrepreneurship</li> </ul>

Several scholars have noted similarities in the manifestation of behaviour and characteristics of corporate intrapreneurs, which make it possible to adopt a definition that will be used to situate the concept in this chapter.

Corporate intrapreneurship is therefore:

*“An innovative, autonomous, and creative initiative of an employee, emanating from the bottom of the organization upwards, characterized by risk taking and proactivity, stimulated by the exploitation of business opportunities, using organizational resources to create value for the organization.”* (Amo, 2010; Bosma, Stam & Wennekers, 2010; de Jong & Wu, 2011; Gapp & Fischer, 2007; Pinchot & Pinchot, 2016). This set a basis exploring similar concepts within the public administration field.

### ***Particularities of Public Entrepreneurship in Public Organizations***

A first notable finding is that entrepreneurship in public organizations must be studied differently than in private organizations, despite the appearance of similarities between the latter (Bernier & Hafsi, 2007). Bernier & Hafsi (2007, p. 490) reported 11 differences that justifies such a stance which is described in Table 3:

**Table 3** Particularity of Entrepreneurship in Public Organizations (Adapted From Bernier & Hafsi, 2007)

<b>Particularities influencing Entrepreneurial Practice in Public Organizations</b>	<b>References in Literature</b>
Objectives, motivations, and political nature of public sector direction	Adams (1979); Bozeman (1987); Kobrak (1996); Larson & Coe (1999); Rainey (1983)
Resource allocation	Aharoni (1986); DeWitt & (1994); Libecap (1996)
Obtaining financial resources	Anderson (1970); Black (1982); Lynn (1981)
Tangibility of the benefits of innovation for citizens	Haass (1999); Hartle (1985); Kogod & Caulfield (1982)
Identification of the citizen segment targeted by a public service	Haass (1999); Hartle (1985); Kogod & Caulfield (1982)
Greater consequences of service delivery on the citizen	Durant and al. (1986); Wilson & Rachal (1976)
Much more critical and demanding citizen in terms of transparency	Blumenthal (1983); Lau, Newman & Broedling (1980); Moe (1994); Moe & Stanton (1989)

Low risk tolerance	Bower (1983); Davies (1981); Hafsi (1989)
The nature of the public organization can influence the promotion and use of entrepreneurship	Moon (1999); Morris & Jones (1999); Thompson (1967)
The more intense and aggressive the organizational environment, the more rigid the organization tends to be regarding entrepreneurship	Moon (1999); Morris & Jones (1999); Thompson (1967)
Main factors negatively influencing entrepreneurship are human resource management, cumbersome procedures and regulations, internal rivalries and lack of recognition and lack of managerial autonomy	Morris & Jones (1999)

These distinctions lead to the need to define what entrepreneurship is within the public administration field and to explore if similar levels of analysis as in business administration literature can be related.

## **Defining Public Entrepreneurship and Public Intrapreneurship**

### *(1)Public Entrepreneurship*

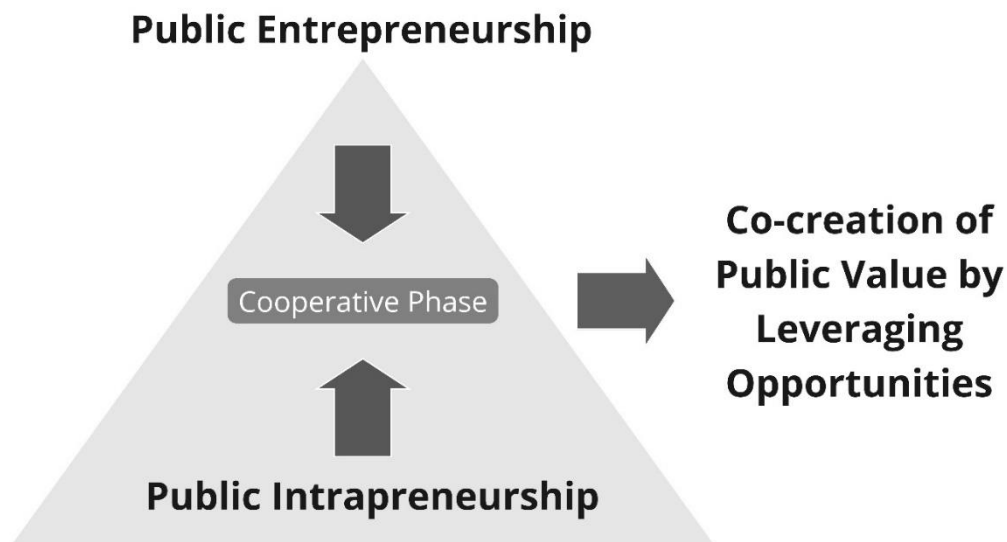
As it was exposed in previous sections of this chapter, Borins (2001a) largely used the term public entrepreneurship to study individual employee behaviours and elaborates about political leadership guiding public administrations in exploiting opportunities at the top of the public organization. Bernier & Hafsi (2007) noted a distinction between the individual and organizational level of entrepreneurial practice at the public sector level. Heroic entrepreneurship is described as an individual behaviour that is similar to the behaviour reported by Roberts & King (1989) of the bureaucratic and executive entrepreneur (Bernier et al., 2007). Systemic entrepreneurship is a ramification of this individual behaviour, focused on the efforts of several individuals who come from multiple sectors of the organization in order to institutionalize innovations in public organizations (Bernier et al., 2007; Lawarée, 2017). The effort of individuals in this sense requires a strategy to take advantage of individual action from public entrepreneurial behaviour in aiming to create value for the citizen. This is akin to studying the strategy of the organization to take advantage of individual entrepreneurial action which cannot be supported entirely by the individual, because it becomes limited at one point in its activities due to the heaviness of bureaucracy and means available to it. This therefore requires a cooperative phase (Hafsi, 1984) between the organizational level and the individual engaging in entrepreneurial activities as mentioned by Bernier & Hafsi (2007, p. 491-492).

There lacks a universally agreed-upon definition for public entrepreneurship, as highlighted by various scholars (Zampetakis & Moustakis, 2010; Klein et al., 2013; Hayter, 2015; Taylor, 2018; Mohammed et al., 2021) or broadly recognized models (Kearney et al., 2008; Karyotakis et al., 2016; Cwiklicki, 2017). Mohammed et al. (2021, p. 46) observed that the concept of corporate entrepreneurship within business administration is synonymous with public entrepreneurship, describing it as a collective endeavour that either lead to the creation of new entities or enhances existing ones, thereby boosting public sector efficiency and citizen welfare. Furthermore, a more recent systematic review of the literature by Funko et al. (2023) did not identify any prevailing definitions or theoretical frameworks for this concept. Consequently, this chapter, per the author, adopts a definition of public entrepreneurship to facilitate clarity and analytical consistency. This definition is based on the works of Kearney et al. (2008); Zampetakis & Moustakis (2007); and Taylor (2018), which resonates with the earlier mentioned notion of corporate entrepreneurship:

*“Any entrepreneurial action initiated in the public sector is carried out by a public servant in a management position, based on its organizational strategy, through the use of a unique combination of*

*private and public sector resources with the objective of exploiting opportunities to create value for the citizen.”*

This chapter, also postulates and supports that two entrepreneurial levels exist simultaneously: the public entrepreneurial and intrapreneurial level. The junction between the individual and organizational level, the cooperative phase, is particularly relevant because it involves a particular dynamic through different actions and activities from those distinct levels to leverage opportunities. Therefore, this justifies the need of segmentation of these phenomena into two fields of study to better conceptualize them and to study their dynamics, as shown in figure 1 below. The next section of this chapter will elaborate on the concept of public intrapreneurship.



**Figure 1** The Cooperative Phase Between Entrepreneurial Levels in Public Organizations

## *(2)Public Intrapreneurship*

At the level of individual public entrepreneurial practice, Ramamurti (1986) was among the first to be interested in this level of analysis in public administration. He compared the behaviours of private sector entrepreneurs to those found in the public sector and noted similarities that could be leveraged to increase efficiency and to navigate in a highly bureaucratic environment. He mentioned that the individual entrepreneur in the public sector uses its skills to break down the bureaucratic barriers of its environment, making it a useful actor in achieving corporate objectives.

Roberts and King (1989) described four types of individual entrepreneurs in the public sector: policy, bureaucratic, executive, and political entrepreneurs. The “entrepreneur” in a bureaucratic environment was often found in managerial positions (Schneider et al., 1995; Borins 1998; 2001a; 2001b; 2001c; 2002) but could hypothetically be found at any level of the organization (Zampetakis & Moustakis, 2007; 2010). Taylor (2018) demonstrated that last affirmation and showed that street-level bureaucrats would introduce and/or facilitate the implementation of new ideas. They were not necessarily occupying a position of leadership or management in the hierarchy and adopted behaviours and actions to exploit opportunities for innovating through stimulation of experimentation and learning in the public organization. Taylor (2018) also provided a first formal definition of the public intrapreneur at the employee level and proposed a

theoretical and conceptual framework drawn from his observations of entrepreneurial behaviour among Australian public servants.

Public intrapreneurship is increasingly recognized as an important area of inquiry within the public administration discipline, drawing attention from various researchers (Taylor, 2018; Chamba & Chazireni, 2021; Gorgievski et al., 2023). Characterized as a phenomenon driven by employees (Reibenspiess et al., 2019; Opland et al., 2021) and often observed at the grassroots level of public organizations (Kraus et al., 2019), it reflects a shift towards recognizing the role of individual actors in fostering innovation within the public sector (Taylor, 2018). The concept of public intrapreneurship is commonly associated with intrinsic motivation (Deci & Ryan, 1985; Gorgievski et al., 2023; Opland et al., 2023), social motivations (Ryan & Deci, 2000; Grant, 2008; Grant & Mayer, 2009; Taylor, 2018; Kraus et al., 2019; Reibenspiess et al., 2019; Gorgievski et al., 2023; Opland et al., 2023), and embodies traits typically linked to entrepreneurial spirit, such as proactivity, willingness to take risks, experimentation, pursuit of utility, autonomy, creativity, collaboration, networking, curiosity, challenging the status quo, and a keenness to learn (Zampetakis & Moustakis, 2007; de Jong et al., 2011; Giones & Brem, 2017; Lawarée, 2017; Taylor, 2018; Kraus et al., 2019; Opland et al., 2021; Gorgievski et al., 2023). Despite the growing interest, a universally accepted definition remains elusive. However, the definition by Taylor (2018, p. 35) closely aligns with the consensus among the literature reviewed and is therefore adopted in this chapter as the foundational framework for understanding public intrapreneurship:

*“A public sector employee initiative from below in the organisation, to proactively challenge the status quo by undertaking something new, or bringing together unique combinations of public and/ or private resources to exploit opportunities, regardless of the obstacles or personal risk taking required, aimed at providing quality services and creating value for the citizen.”* Taylor (2018, p. 35)

This definition is a continuation of that of Zampetakis & Moustakis (2007, p. 34) and addressed their conclusion that more research at the level of public sector employees was necessary to be able to demonstrate that entrepreneurial behaviours were not exclusively manifested at the managerial level, as previously studied in the literature as public entrepreneurs (Zampetakis & Moustakis, 2007, p. 33). Through his study, Taylor (2018) demonstrated that intrapreneurs are therefore present at all levels of the public organization and carry out specific actions that influence their environment. Here is a summary of Taylor’s findings in table 4:

*Table 4 - Summary of Contributions from Taylor (2018)*

<b>Main Contributions of Taylor (2018) on Public Intrapreneurship</b>			
Public Intrapreneurship / public sector	Taylor (2018)	Qualitative (Phenomenology)	<ul style="list-style-type: none"> <li>- Exploration of the phenomenon and its manifestations, particularly at a non-managerial level;</li> <li>- Establishment of a theoretical and conceptual framework for the concept;</li> <li>- Development of nine intrapreneurial archetypes at the public sector level;</li> <li>- Definition of a framework representing intrapreneurial practice in the public sector;</li> <li>- Concept of archetype transition and improvement of the intrapreneur's chances of success through this process;</li> <li>- Better understanding of the consequences of intrapreneurial actions and its benefits</li> </ul>

## **A Framework for Public Intrapreneurship**

In addition to intrinsic and social motivations, the public sector intrapreneur is in a quest for self-realization and helping others. Taylor (2018) demonstrated this affirmation by finding several themes in his sample relating to this concept and grouped them into three main categories. They are summarized in table 5 below with a summary of the theoretical framework of the intrapreneurial practice (adapted from Taylor, 2018, p. 227):

**Table 5** Theoretical Framework of the Public Intrapreneurial Practice

<b>Theoretical Framework of Public Intrapreneurship (Adapted From Taylor, 2018)</b>			
<b>Intrapreneurial Strategy</b>	<b>Intrapreneurial Behaviour</b>	<b>Intrapreneurial Orientation</b>	<b>Intrapreneurial Activities and Process</b>
Behaviour demonstrating simultaneously innovativeness, proactiveness and risk taking	Predisposition to accept entrepreneurial processes, practices, and decision-making with a preference for innovation, proactivity and risk taking	Informal, autonomous strategic behaviour aiming to redefine and broaden the scope of approved business strategy	Bottom-up process through initiation and implementation of different activities by individuals to discover and exploit business opportunities

It may first appear that this activity is undesirable, or even deviant due to its individuality. This is arguable by what composes the behaviour of a public intrapreneur: its social and intrinsic motivations. The one described in Taylor's results (2018) is modelled on the altruistic description of the public servant made by Andersen, Jensen and Kjeldsen (2020) and that public servants want to make a difference in the lives of others (Denhardt 1993; Perry & Wise 1990; Vinzant 1998). These motivations are catalyzed by adding an intrapreneurial aspect using multiple mechanisms aimed at improving the quality of public services. The intrapreneur achieves its objectives through the combination of a dominant strategy, behaviour and intrapreneurial orientation, aligning with the main strategy of the organization (Taylor, 2018; Opland et al., 2023). The choice of a dominant strategy by the intrapreneur is based on its analysis of the situation, its personal preferences, its skills, and its knowledge of other intrapreneurial approaches and is manifested by a combination of archetypes that the intrapreneur can interchange according to its analysis of the situation (Taylor, 2018):

**Table 6** Main Archetypes of the Public Intrapreneur (Adapted from Taylor, 2018, p. 114)

<b>The Archetypes of Public Intrapreneurship (Adapted from Taylor, 2018, p. 114)</b>		
<b>Search for impact and innovation (Intrapreneurial Strategy)</b>	<b>Search for freedom to take action (Intrapreneurial Behaviour)</b>	<b>Resilience (Intrapreneurial Orientation)</b>
<ul style="list-style-type: none"> <li>- Leave its mark and make a difference;</li> <li>- Motivation to surpass oneself.</li> <li>- Criticism of the status quo and search for best practices (curiosity);</li> <li>- Find solutions and create opportunities for experimentation</li> </ul>	<ul style="list-style-type: none"> <li>- Search for legitimacy by creating premises at an individual level to demonstrate the viability of the opportunity exploited to the hierarchy;</li> <li>- Collaboration and networking;</li> <li>- Using their expertise and knowledge of the organizational environment to break the status quo</li> </ul>	<ul style="list-style-type: none"> <li>- Learning from successes and failures;</li> <li>- Ability to get back up after a failure;</li> <li>- Persistence to overcome challenges;</li> <li>- Self-criticism and capacity for introspection at the level of one's own experiences</li> </ul>

The next section will discuss the connection between public intrapreneurship, as defined in this section, and the ways in which it acts on organizational change in the process of adopting digital technologies within public organizations.

## **DIGITAL INTRAPRENEURSHIP WITHIN PUBLIC ORGANIZATIONS**

By differentiating between public entrepreneurship and public intrapreneurship, the reader can better understand their respective roles and scope in the organization.

In this segment, the discussion pivots towards elucidating the role of intrapreneurship practices in facilitating the adoption of digital innovations within the public sector. To elucidate this relationship, the author intends to present an illustrative scenario that serves as an empirical example. This scenario aims to illustrate the mechanisms through which intrapreneurs, endowed with a set of distinctive traits previously delineated—namely experimentation, the pursuit of value, autonomy, creativity, collaborative engagement, networking, curiosity, a propensity to challenge the extant status quo, and a dedication to ongoing learning—can act as pivotal agents of change. Through this exemplification, the narrative seeks to academically underscore the capacity of intrapreneurial individuals to navigate and dismantle the conventional barriers to digital integration, thereby spotlighting their instrumental role in propelling digital transformation within public sector organizations.

Building on the insights from section 3 of this chapter, the pivotal role of AI as a transformative force in public organizations cannot be overstated, despite the substantial hurdles it encounters in its adoption process. The systematic literature review by Madan & Ashok (2022) underscores organizational inertia as a significant barrier to adopt AI within public organizations. However, the ensuing discussion will illuminate how intrapreneurs can serve as critical catalysts for change, possessing the unique ability to influence and mitigate the effects of organizational inertia. By showcasing various strategies through which these innovative actors can drive the integration of this essential digital technology, the next section of this chapter will explore their instrumental role in revolutionizing the adoption landscape in public organizations. This section aims not only to highlight the challenges but to provide a compelling argument for the transformative potential of intrapreneurs in navigating and overcoming these barriers, thereby facilitating a more seamless and effective adoption process of AI.

### ***Digital Intrapreneurs' Impact and Outcome in the Adoption Process of AI in Public Organizations***

It is first important to define the concept of organizational inertia to better understand how the intrapreneurial practice can influence it. Hannan & Freeman (1984) define organizational inertia as a structural consequence of formalization, emphasizing the organization's desire for reliable performance and accountability. This leads to institutionalized routines that create resistance to change, ultimately maintaining the status quo. As time progresses, these routines become numerous leading to a dependency on past successes and reducing responsiveness to environmental changes, as discussed by various scholars (Sull, 1999; Chesbrough, 2006, 2007; Matthyssens et al., 2006; Huang, Lai, Lin & Chen, 2012).

The concept of organizational inertia is further expanded by Godkin & Allcorn (2008), who introduce its multidimensionality. They propose three dynamic dimensions: action inertia, psychological inertia, and insight inertia. Action inertia involves slow and ineffective managerial



responses to environmental changes, characterized by behaviours that defend the status quo. Those behaviours are:

- Role-constrained learning: wasteful allocation of people that does not let them use their skills fully;
- Audience learning: failure of individuals to persuade other members of the organization about the need for change in the organization;
- Superstitious learning: weak analysis of the effects of the organization's actions on its environment based on previous assumptions;
- Situational learning: a problem is solved, but no analysis has been recorded, thus losing this positive experience for the organization;
- Fragmented learning: the organization cannot absorb the learning that occurred in the experimentation process;
- Opportunistic learning: rigidity of processes, policies and rules that prevents the integration of learning to cope with new situations.

Psychological inertia, on the other hand, is marked by resistance to change due to the destabilization of group interests and the uncertainty and insecurity changes bring to organizational routines. Insight inertia entails a lack of understanding of the environment and inability to interpret changes leading to delayed adaptation, and diminished organizational learning. This multidimensional approach highlights the complexity of organizational inertia and its impact on learning and adaptability within organizations.

In their article, Cuillerier et al. (2023) found eight themes surrounding organizational inertia in a thematic analysis of literature and linked them to Godkin & Alcorn (2008) multidimensional model of inertia (Table 7).

**Table 7** Main Themes and Their Associated Inertia Dimension (Cuillerier et al., 2023)

<b>Summary of Themes Related to Organizational Inertia in the process of Adopting AI in Public Organizations (adapted from Cuillerier et al., 2023, pp. 19-21)</b>	
<b>Theme</b>	<b>Dimension of Inertia</b>
Rigidity towards innovation and resistance to change of individuals	Action Inertia Psychological Inertia Insight Inertia
Lack of innovative collaboration	Action Inertia Psychological Inertia
Perceived lack of usefulness, potential, benefits and willingness to experiment with AI	Action Inertia Psychological Inertia
Lack of governance, strategic planning or strategic alignment in relation to the use of AI	Insight Inertia Action Inertia
Lack of adaptability and responsiveness to the speed of changes and demands emanating from the environment	Insight Inertia Action Inertia
Lack of understanding of accountability in relation to the use of AI and its effects on external and/or internal stakeholders (ethical, societal, regulatory)	Action Inertia Psychological Inertia
Bureaucratic heaviness	Action Inertia
Lack of resources or organizational knowledge	Insight Inertia Action Inertia

They concluded that intrapreneurship in public organizations could be a way to overcome inertia related to the adoption of AI in public organizations. This is because the themes in their analysis matched the features of individual entrepreneurial behaviour that could counteract inertia. These

are experimentation; seeking utility; autonomy; creativity; collaboration; the ability to link individuals; curiosity; questioning the status quo; and the desire for learning (Zampetakis & Moustakis, 2007; de Jong et al., 2011; Giones & Brem, 2017; Lawarée, 2017; Taylor, 2018).

Furthermore, this was also raised by van Noordt & Tangi (2023) who studied 15 cases of adoption of AI in public organization. They found that public servants with AI expertise played a significant role for developing AI capability and were critical to ensuring ethical and responsible use of AI. They also found in two cases that suggestions for AI uses often came from intrapreneurial public servants who kickstarted the process or provided a large pool of potential use cases for the organization to refine them further. This empirical evidence example will be used in the next section to extrapolate on how the public intrapreneur can act as a change agent and on the different dimensions of inertia in the process of adoption of AI in public organizations.

### ***The Digital Intrapreneur ' s Impact on Dimensions of Organizational Inertia***

Considering the different dimensions of inertia that emanate from the AI adoption process within public administrations (Cuillerier et al. 2023), the public intrapreneur can prove to be a major asset. At the level of insight inertia, the public intrapreneur, through its curiosity, its openness, and its understanding of the internal and external environment of the public organization, its knowledge of digital innovations and their potential, in particular AI and advanced digital technologies, can exploit opportunities emanating from its environment to proactively create value by adopting multiple perspectives that are not anchored in organizational routines (Taylor, 2018).

At the level of action inertia , the public intrapreneur can, due to its knowledge of the public sector and its resilience, navigate effectively through bureaucratic heaviness to succeed in breaking organizational routines which can act as a barrier to innovation (Taylor, 2018) and tackle this dimension of inertia through an approach based on the design of premises (Godkin & Allcorn, 2008) to break harmful assumptions present within public administrations.

Assumptions can be harmful by creating action inertia through their anchoring in the successes of the organization's past experiences and undermining the desire for experimentation. The public intrapreneur, through its desire to experiment, could break the status quo in its constant search for solutions, by putting on the table a premise (prototype or pilot) that it submits to the test of its hierarchy. It learns from feedback and adjusts its assumptions to make them more acceptable. It does this through a series of iterations that foster organizational learning and create room for reflection on new ideas. This reasoning is also applicable to the problem of the perceived lack of potential and usefulness of AI causing inertia within the public sector (Cuillerier & al, 2023). As Taylor (2018) demonstrated, the public intrapreneur, through understanding its organizational environment, can discern not only which opportunities are likely to have higher chances of success by mitigating the risk, but also what is necessary for it to guarantee the viability of its actions, sometimes transcending its role to achieve this. Not only is it calculative in its actions, but it prepares the environment for its intervention by presenting a prototype, a proof of concept or demonstrates mature reasoning (Taylor, 2018).

The public intrapreneur is constantly looking for opportunities to innovate and improve its environment (Taylor, 2018) and from this preference for experimentation, AI uses can be identified for candidate innovations. This can sometimes lead the public intrapreneur to break organizational norms by protecting its initiative (Taylor, 2018), a behaviour that is sometimes necessary given the novel and disruptive nature of the intrapreneurial action. This can address the problem of action inertia at the level of opportunistic learning. This behaviour can also be beneficial if it is constructive. It is similar to the concept of constructive disobedience (Avey et al., 2012; Brief et

al., 2001; LePine & Van Dyne, 2001; Van Dyne & LePine, 1998; Skubinn & Herzog, 2016). One of the outputs of this behaviour is the improvement in the quality of decisions made in the organization (Warren, 2003; Skubinn & Herzog, 2016).

In terms of the lack of innovative collaboration, the intrapreneur can establish and leverage networks internal and external to the organization with the aim of collaborating on projects or innovative ideas that it develops, creating bridges between various stakeholders and breaking organizational silos by using its relations to foster collaboration on certain initiatives (Lawarée, 2017; Taylor, 2018). The actions taken by the intrapreneur in this sense not only allow experimentation, but they stimulate organizational learning and the development of organizational memory (Naranjo-Valencia et al., 2011; Gieske et al., 2016; Sørensen et al., 2017). It is also plausible that the intrapreneur has an impact on organizational culture. As discussed in previous sections, risk tolerance and resistance to change can be significant barriers to the adoption of innovations, creating organizational inertia (action and psychological dimensions). Indeed, by the nature of the dominant strategy employed and as described by Taylor (2018), the intrapreneur seeks to have an impact on the public sector, but also on its culture and practices. It exercises a positive influence as a leader in its environment by considering the attitudes of the individuals around him, both at the bottom and at the top of the hierarchy, sometimes calling into question the leadership in the organization (Taylor, 2018) and using positive organizational politics to promote innovation and initiative along the way (Taylor, 2018). Although Taylor does not specifically name this concept, it is similar to Borins's (2000) metaphor of the intrapreneurs as "loose cannons and rule breakers" and what Landells & Albrecht (2017) described as positive political behaviour. The authors demonstrated that this behaviour had a positive impact on the organization, particularly in the public sector. Landells and Albrecht noted that this behaviour can lead to greater productivity and achievement of objectives; facilitating organizational progress and adaptation to change; increasing communications and discussions on important topics (breaking down silos); and favouring a setting that can facilitate innovation.

The intrapreneur can also overcome psychological and action inertia by learning from the outcomes of its initiatives, whether they are successes or failures, and by showing positive behaviours such as optimism, energy, and persistence. This is how the intrapreneur displays resilience (Taylor, 2018). The public intrapreneur therefore manages to convince their superiors of the merits of their initiative, tackling the problem of audience learning. Through the learning it carries out of its initiatives, the public intrapreneur adjusts their premises in order to adapt them to their context or wait for the right moment to submit them to the organization, "planting and watering seeds" to use the expression of one of the interviewed intrapreneurs in Taylor's study (2018, p. 155).

However, there are not only advantages to intrapreneurship. This practice is not without risks, particularly in terms of the mobilization of already limited resources in the public sector. This involuntary resource mobilization is beyond the control of public organizations and can harm their effectiveness. With the upheavals caused by recent advances in AI in the current context, the use of these new techniques within public organizations can be criticized and the innovations made by the intrapreneur could represent a risk if they are not adapted to their context or simply lead to a bad outcome, potentially destroying public value (Cui & Osborne, 2021). Since this practice has the potential to exert a notable influence on the organization (Amo, 2010; Taylor, 2018), it is necessary to better study it to frame it, structure it, legitimize it, but above all, use it effectively.

In this regard, and to better define the subject of study, digital innovations, such as AI, bring with them new forms of opportunities to be exploited by intrapreneurial, but also entrepreneurial

practice. This is also true regarding the social and industrial context changing as seen in the section on Industry 4.0, 5.0 and Society 5.0. Due to their particularities, these innovations will require a particular type of public intrapreneur with specialized knowledge to be exploited within the public organization.

By its distinct nature from the private sector, as explored in the previous section, entrepreneurial practice in the public sector, particularly in the process of adopting AI and digital innovations, will be influenced by different motivations of this actor. It is therefore appropriate to limit the study of the exploitation of these digital opportunities to better understand this phenomenon in the future, particularly its impacts on the adoption of AI in the public sector. This is explained by what is at the genesis of the intrapreneurial initiative (the adoption of a strategy by the public intrapreneur as described by Taylor (2018)) in this context to create value for the citizen.

It is through the emergence of opportunities from new digital technologies, the changes operating in the technological and socio-economical context and through the entrepreneurial spirit of public organizations (through the digitization of government services) that this is possible. This reasoning is rooted in the definition made in the literature of a new form of intrapreneurship, namely digital intrapreneurship (Pinchot & Soltanifar, 2021). This concept originates from the emergence of digital technologies, which include, but are not limited to, the use of AI to improve the organizations and maximize benefits from them. Pinchot & Soltanifar (2021, p. 239) defined digital intrapreneurship as:

*“Employees who use their entrepreneurial spirit for the benefit of their employer and simultaneously to give meaning to their work by implementing their ideas to produce impactful digital innovations.”*

Following Taylor's (2018) work on public intrapreneurship and findings, it appears plausible that this form of intrapreneurship can also manifest itself within public organizations. However, even with preliminary evidence that such behaviour exists within the public sector (Reibenspiess et al., 2019; Opland et al., 2021; van Noordt & Tangi, 2023), more empirical evidence will be needed to further establish its existence, mechanisms and extent, but the above reasoning tries to theorize in regards to the context of effervescence of use of digital technologies and the rise of AI projects in public organizations (Rukanova et al., 2021; Daly, 2023) leveraging the theoretical framework developed by Taylor (2018), in particular through the adoption of a dominant intrapreneurial strategy of creating opportunities and experimentation. This leads us to propose definitions and a theoretical framework for the practice of digital public intrapreneurship in the next section of this chapter.

### ***A Framework for Digital Intrapreneurship in the Public Sector***

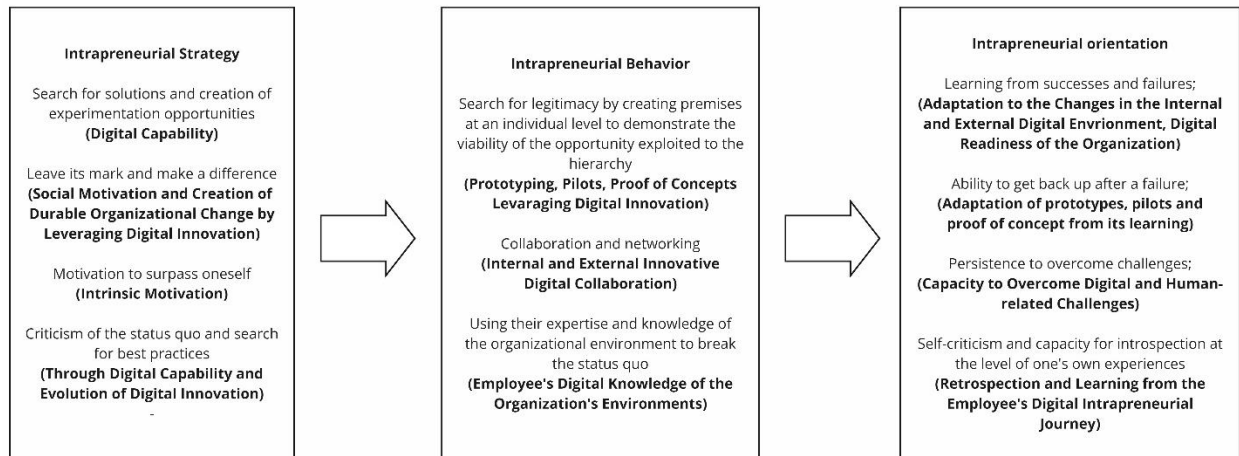
To distinguish what makes unique the digital levels of entrepreneurship in the public sector, a final concept of importance will be explored before concluding: digital capability. Digital capability (DC) (DeLone et al., 2018); Prokesch et al., 2021) is defined as an ability to use technology to create value for the consumer, suppliers or for the organization itself. Several researchers have demonstrated the importance of this ability among employees as being an important factor in the exploitation of digital opportunities combined with organizational strategy (Parida et al., 2015; Prokesch, 2017).

Arkhipova & Bozzoli (2018, pp. 124-125) cited the example of the Italian energy company Enel who assessed the digital capability of their employees using four factors: personal ownership of technological equipment; frequency of use; the willingness to share their knowledge and information and the individual aptitude for entrepreneurial practice (Arkhipova & Bozzoli, 2018,

p. 140). Subsequently, the company Enel adapted different learning paths for their employees tailored to their digital capability. The authors note that a high individual digital capability alone cannot justify an employee's intrapreneurial behaviour and that it is the employee's combination of individual intrapreneurial motivation and individual digital capability that leads them not only to exploit digital opportunities but do so faster than regular intrapreneurs (Pinchot & Soltanifar, 2021; Soltanifar & Smailhodzic, 2021) with the aim to create value for the organization and its stakeholders.

In the public sector, Opland et al. (2021) studied barriers and drivers of employee-driven innovation through a case study approach focused on ten digitalization initiatives within a Norwegian municipality, including four distinct projects that originated from employee ideas at various stages of development, ranging from inception to implementation. These projects encompass the development of digital services for municipal restaurants, a new digital case management system for construction applications, a digital processing system for municipal politicians, and digital services for refugees. They found that the main drivers were citizens' needs; engaged employees; technological developments and management support. The main barriers found were the lack of innovative culture; lack of financial support; bureaucracy; and lack of digital tools supporting innovation. They also found that employees within the public sector were "innovation champions" (Reibenspiess et al., 2019 cited by Opland et al., 2021 p. 6) that could catalyze the process of digital innovation. The authors claim that digital knowledge is not critical for the employees' role in facilitating this process, but this chapter, per the author, tends to agree more with Soltanifar & Smailhodzic (2021) and Pinchot & Soltanifar (2021) arguments that, in the present technological landscape, as demonstrated previously in this chapter, digital capability of individual employees will accelerate innovation adoption of digital technologies within public organizations because those employees will have more abilities to identify and evaluate the suitability, choice and execution of digital innovation in this specific context, as shown and discussed by van Noordt & Tangi (2023) in the case of AI.

This therefore leads to the hypothesis that digital transformations in public organizations can lead to the manifestation of this combination of intrapreneurial behaviour, motivation and digital capacity among public sector employees and responds to the call for more research on digital transformations within public administrations, particularly at the level of employees (their role in these transformations and the impact of these changes on their functions) (Fischer et al., 2021, p. 16). This hypothesis differs from current literature on employee-driven digital innovation by establishing not only the importance of intrinsic or social aspect of motivation (Opland et al., 2023), but also situating it within public sector specific context by adding dimensions from the intrapreneurial activity described in Taylor's work (2018) and incorporating the notion of digital capability as a crucial distinguishing factor from public intrapreneurship. This chapter, per the author, proposes a theoretical framework adapted from Taylor's (2018) work that encompasses the practice of digital public intrapreneurship:



**Figure 2** Theoretical Framework of Public Intrapreneurial Practice at the Digital Level (Adapted from Taylor, 2018)

### ***Defining Digital Intrapreneurship and Entrepreneurship in Public Organizations***

To better define this type of intrapreneurship and its entrepreneurial pendant with the aim to circumscribe its study in future research, this chapter, per the author, defines the digital public intrapreneur (DPI) as:

*A public sector employee who, through autonomous action characterized by resilience, risk taking and proactivity, undertakes new activities to innovate using digital technological advances and/or specialized digital knowledge to exploit opportunities in its environment with the objective of providing or improving better quality public services and generating value for citizens.*

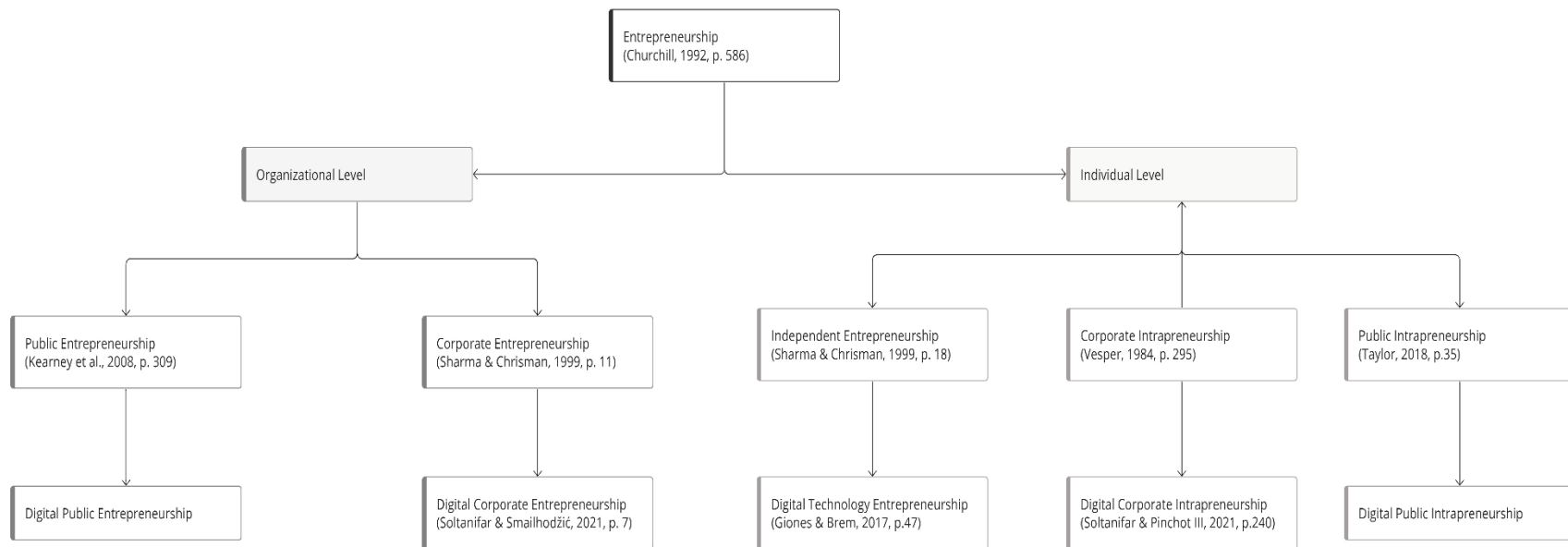
This definition is adapted from Taylor (2018) for the concept of public intrapreneur and its motivations; by Zampetakis & Moustakis (2007) for the motivation of the employee with a view to creating value for the citizen; de Jong et al. (2011) for the notion of autonomy, risk taking and proactivity; Giones & Brem (2017) who address the notion of exploitation of an opportunity through specialized knowledge through innovation and digital technological advances making digital entrepreneurial behaviour distinct; and finally by Pinchot & Soltanifar (2021) which defines the use of digital technologies at the level of the intrapreneurial employee for the benefit of the organization. It also complements the definition made by Opland et al. (2021) by adding the public management concept of public value, but also differentiates this behaviour from the one observed in the private sector. The author of this chapter believes that this definition will help to guide future research in the young field of public intrapreneurship, but also in efforts to study the adoption process of digital technologies and AI within public organizations.

The author also uses this chapter to introduce the concept of the digital public entrepreneur (DPE) as:

*A public servant in a management position, carrying out an entrepreneurial action initiated in the public sector based on their organizational strategy, using a unique combination of private and public sector digital resources with the objective of exploiting digital opportunities to innovate to create value for the citizen.*

This definition is adapted from Taylor (2018); Kearney, Hisrich & Roche (2008); Zampetakis & Moustakis (2007) and Soltanifar & Smailhodzic (2021).

Below is a figure that shows the classification of entrepreneurial activities in the private and public sector, their level, and their references in literature:



**Figure 3** Classification of Entrepreneurial Activities

## LIMITATIONS AND FUTURE RESEARCH AGENDA

For scholars and practitioners alike who are keen on exploring the field of intrapreneurship, a recent systematic review spanning both the private and public sectors has identified various focal points within the field. Leible et al. (2023) unveiled several recurrent themes across studies. In augmenting this foundational work, the current chapter incorporates additional contributions deemed absent from Leible et al.'s review, thereby enriching the discourse on public intrapreneurship. Predominant research themes identified include the drivers of motivation and engagement among public sector employees (Taylor, 2018; Reibenspiess et al., 2019; Opland et al., 2020; Opland et al., 2023; Gorgievski et al., 2023; Lidman et al., 2023); the impacts of intrapreneurial behaviour within public organizations (Reibenspiess et al., 2019; Opland et al., 2021); environmental and organizational conditions that facilitate intrapreneurial endeavours (Taylor, 2018; Opland et al., 2023; Lidman et al., 2023); the critical skills required for intrapreneurship (Kraus et al., 2019; Opland et al., 2023; Lidman et al., 2023); and the correlation between intrapreneurial activity and employee satisfaction (Taylor, 2018; Lidman et al., 2023). The identification of these themes, alongside the gaps and intersections with public entrepreneurship research, presents numerous avenues for further inquiry, signifying a rich landscape of research opportunities within this evolving field.

Firstly, more empirical research is needed around public entrepreneurship and public intrapreneurship as discussed by Mohammed et al. (2021), Funko et al. (2023) and Leible et al. (2023) in their systematic literature reviews. For public entrepreneurship, there is a need to explore more of the characteristics of digital public entrepreneurship based on the provided definition and establishing a framework for it. For public intrapreneurship, empirical research is particularly necessary to broaden the findings of Taylor (2018), which are currently limited to the context of the Australian public administration. This would help in widely adopting a robust theoretical framework of intrapreneurship. To do this, it would be necessary to carry out confirmatory studies to validate the results of this research. If these are confirmed, they could have considerable repercussions in the strategies used to encourage and use this behaviour within government organizations, in particular to compensate for organizational inertia, but also in the education of intrapreneurs of their role in the organization. This has also been noted by several other authors regarding employee-driven digital innovation (Reibenspiess et al., 2019; Opland et al., 2020; Opland et al., 2021).

Secondly, regarding outcomes of intrapreneurial behaviour, to the knowledge of the authors of this chapter, there are no studies on the intrapreneurial impact on organizational inertia in the context of the adoption of AI within public administrations as briefly demonstrated in this chapter. A qualitative study approach would be appropriate to better understand what specific role digital public intrapreneurs can play in the adoption and diffusion of digital innovations, notably AI, within public organizations with a view to confirming the hypotheses that have been expressed in this chapter. An instrumental case study would also be interesting in studying their impact.

Third, regarding conditions favouring intrapreneurial activities, it would be relevant to study the interactions between the public entrepreneurial and public intrapreneurial level, particularly at the level of the relationship between individuals, but also the experience of the digital public intrapreneur with the organizational digital entrepreneurial strategies currently in place in public organizations. This could be beneficial in developing and improving these strategies in the future. In relation to the frictions between managers and public intrapreneurs noted by Taylor (2018, p. 146), questions emerge regarding the factors that facilitate or hinders the acceptance of intrapreneurial behaviour as a legitimate role within public administrations, but also how to foster



their cooperation. This also applies to the role of leadership in fostering digital intrapreneurship by examining the influence of leadership styles and strategies on the success of digital intrapreneurship within public organizations. This could include a focus on transformational leadership, supportive leadership, and the implementation of leadership development programs aimed at encouraging digital innovation from within. Another area of research could explore the how different aspects of organizational culture in public sector institutions support or hinder digital intrapreneurial and entrepreneurial initiatives. This research could explore cultural attributes such as openness to change, risk tolerance, and the promotion of innovation, offering insights into how these elements can be cultivated to facilitate digital transformation. It could be interesting to conduct comparative studies of digital innovation practices across different countries and cultural contexts. This research could identify best practices, barriers, and facilitators of digital transformation in the public sector, offering insights into the role of contextual factors in shaping digital innovation strategies.

Fourth, focusing on intrapreneurial satisfaction and engagement, since the public intrapreneur can manage to juggle the different intrapreneurial approaches when it is aware of them, it would be relevant to explore how to empower public intrapreneurs so that they can succeed in transitioning between them, thus improving their chance of success and the quality of their initiatives. This could be done by developing an entrepreneurial strategy to leverage intrapreneurs and legitimize them in the public organization.

Fifth, future research could critically explore the intersection of employees' digital literacy and digital capability to act as champions of innovation within public sector organizations. Given the contrasting views and findings of Opland et al. (2021), Pinchot & Soltanifar (2021), Soltanifar & Smailhodzic (2021) and van Noordt & Tangi (2023), there is a compelling need to investigate how varying levels of digital capability among public sector employees influence the ideation, development, and implementation phases of digital innovation projects. Such research could employ a mixed-method approach, combining quantitative measures of digital literacy and capability with qualitative insights from case studies across different governmental contexts, to assess the impact of digital skills on the ability to navigate and reduce bureaucratic and financial barriers to innovation. Additionally, studies could focus on identifying specific digital competencies that significantly contribute to the success of digital innovation initiatives and how these competencies interact with organizational culture, leadership support, and the broader technological ecosystem. This line of inquiry not only advances the understanding of the dynamics between individual capabilities and organizational innovation processes but also offers practical implications for designing targeted professional development programs and policy interventions to enhance the digital innovation capacity of the public sector.

Finally, the concepts of digital intrapreneurship and entrepreneurship in the public sector appears to be potentially distinct areas of study based on this chapter's concepts. More attention to this avenue is necessary to confirm these findings empirically and with a view to defining its characteristics and actions within the public organization. A qualitative methodological approach seems appropriate to explore the particularities of these concepts and establish further their existence. This research is also relevant in the context where more studies are needed on the impact of digital transformations on public servants and society (Fischer et al., 2021) and the government and public servants' role as leaders in these transformations (Opland et al., 2022).

## CONCLUSION

This chapter makes several contributions to the fields of public management, change management and digital technology management, notably by making it possible to establish the relevance of studying public intrapreneurship and entrepreneurship, particularly in terms of the adoption of digital technologies within public administrations. First, the relevance of studying the dynamics of public intrapreneurship and entrepreneurship as distinct levels to understand their respective particularities and relevance was demonstrated. The characteristics of public intrapreneurship were subsequently developed to link them to the dimensions of inertia in the facilitating adoption of AI and digital technologies within public administration. Finally, the relevance of circumscribing the intrapreneurial and entrepreneurial practices in terms of digital innovation and its influence on digital technologies in public organizations was established as a distinct field of study by the definition of the public digital intrapreneurial and entrepreneurial practices.

At the individual level, this chapter, per the author, notes that the actions taken for the creation and exploitation of opportunities by the intrapreneur public servant should be supervised, recognized, accompanied, and leveraged by public organizations to create value for the citizen; the opposite is also true. The public intrapreneur must also feel supported by its organization (the entrepreneurial level) and become aware of its role and the strategies at its disposal to better direct its actions to improve the quality of services to citizens and add value to the public service.

With the conclusions of Taylor (2018) in mind, it appears that certain frictions can arise between the entrepreneurial and intrapreneurial levels of the public organization. The author of this chapter believes that these barriers could fall thanks to the legitimization and empowerment of intrapreneurial practice which will involve the establishment of an entrepreneurial organizational strategy in public organizations aiming to raise awareness among managers of the intrapreneurial and the digital intrapreneurial practices. A recent demonstration of this need comes from a conference held at the Canada School of Public Service entitled: Creating Space for Employee-Led Experimentation (Government of Canada, 2023b). This presentation provided an overview of the need for academia to distinguish and study intrapreneurial and entrepreneurial practice, notably their digital forms, within public organizations and it also demonstrated a value and interest of public organizations and governments in intrapreneurship at the public servant level.

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## KEY TERMS AND DEFINITIONS

**AI of Things (AIoT):** merges AI with the internet of things (IoT) technologies, enabling smarter, autonomous systems that can analyze data, predict outcomes, and make decisions, thus enhancing efficiency and functionality of IoT applications.

**Generative AI:** artificial intelligence systems designed to create content, including text, images, audio, and video, that mimics humanlike creativity. These systems learn from vast datasets to generate new outputs that can be original and contextually relevant, based on the patterns, styles, and information they have been trained on.

**Intelligent Robots:** machines equipped with artificial intelligence (AI) that can learn from their environment and experiences, make decisions, and perform complex tasks autonomously or with minimal human intervention. They combine sensory data, processing power, and algorithms to navigate, understand, and interact with the world around them, adapting their actions based on the outcomes of previous behaviours.

**New Public Governance (NPG):** paradigm in public administration that emphasizes collaboration across government, private, and civil sectors to tackle societal challenges, prioritizing participative, inclusive approaches over market-driven models. It focuses on democratic engagement and co-production of services, aiming for holistic and network-based governance solutions.

**New Public Management (NPM):** paradigm in public administration that introduces private sector practices into the public sector, aiming to increase efficiency, effectiveness, and responsiveness through market-based mechanisms, decentralization, and a focus on results and customer service. It marks a shift from traditional bureaucracy to a more businesslike approach to governance.

**Principal-Agent Theory:** explores the relationship between a delegating party (principal) and a performing party (agent), highlighting issues like differing goals and information asymmetry. It focuses on aligning the agent's actions with the principal's interests through incentives, contracts, and monitoring to mitigate self-serving behaviours.

**Public Value (PV):** encapsulates the creation of societal benefits through sustainable and legitimate public management strategies, marking a shift from organizational efficiency to focusing on the external societal impacts of public services.

**Street-Level Bureaucrats:** frontline public service workers (e.g., police officers, teachers, social workers) who directly implement government policies and interact with citizens. They hold considerable autonomy in decision-making, significantly influencing policy outcomes and public service experiences. This concept emphasizes their pivotal role in bridging policy directives with real-world applications and challenges.