

A SYSTEMATIC LITERATURE REVIEW ON PUBLIC INNOVATION

Jean Hartley and Laurence Knell

Centre for Policing Research and Learning
The Open University

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Jean.hartley@open.ac.uk

Laurence.knell@open.ac.uk

INTRODUCTION

Innovation is rising to the top of the public sector agenda because it offers an intelligent, cost-saving alternative to blind, across-the-board cuts in times of dire fiscal constraints, and because it helps to address wicked and unruly problems that can neither be solved using existing standard solutions nor by increasing public expenditure.

(Torfing, 2019, p.2)

Background and purpose of the literature review and report

This report contains the findings of a systematic literature review, which is a particular method of searching literature to provide up-to-date and rigorous evidence about public innovation. There is a pressing need for a solid evidence base as public services, including policing, strengthen their organizational capability to undertake innovation.

Until a decade ago, public innovation was a neglected topic. Innovation studies as a field was dominated by studies of private sector manufacturing, operating in competitive economic markets. In 2008, a prominent innovation researcher commented that “innovation in public services [is] extremely important and little studied” (Nelson, 2008, p. x).

There are similarities but also differences in the innovation approaches in public compared with private organizations, and also between manufacturing and service innovation. Some features are specific to public innovation, for example, the aim to create better services and value to society rather than make a profit; the role of elected politicians; accountability; citizens not customers; the value of sharing not hoarding innovations.

In the last decade, there has been active research on public innovation (but less on policing, as this review notes). The last systematic review took place in 2016 (de Vries et al, 2016) and is based on academic literature up to 2013. The current review takes the literature from 2010 right up to 2021.

This report has been commissioned by the College of Policing and aims to:

- Build a strong evidence base for policing innovation – encouraging action to be evidence-informed
- Contribute to the building of organizational capability in policing
- Ensure that future strategic initiatives about innovation are grounded in the best available evidence
- Ensure evidence is up to date, given this is a thriving field
- Feed into tool kits and other guidance for front-line innovation practitioners, line managers and strategic leaders in policing

The report examines the academic literature about public innovation published in English between 2010 and 2021. Through a systematic and comprehensive review process, weaker articles and those less directly relevant to public sector and policing innovation were excluded, ensuring a conscious focus on those papers with clear frameworks and findings built on evidence. This method is outlined in greater detail in the section on methodology.

Public organizations can have many roles in innovation. They can: undertake it themselves; bring together partners to jointly undertake collaborative innovation; fund other organizations to undertake innovation; and can help make sense of which are the most useful innovations through leadership and evidence. This report concentrates on the first two roles (undertaking innovation within an organization or working with partners to do so). The papers have been selected for the quality of their research in shedding light on organizational capability.

We take innovation to be, following the literature, something new which is implemented (it is not just the invention or creation stage) and which represents some kind of step-change, however small. Innovations can be small-scale or transformational, both are known to be highly valuable. The innovation does not

need to be a success to be an innovation and a great deal can be learnt from innovation failures. Innovation is something new to an organization or unit, it may have been used elsewhere previously. Finally, innovation inevitably has some subjective elements. A fuller outline of the concept of public innovation can be found in Hartley and Torfing (2020) or Osborne and Brown (2011).

Report Structure

This report is structured as follows.

It sets out the aims of the systematic literature review, then outlines the methodology employed. The report proceeds to examine the key findings from the literature review, analysing the literature through five key groups or themes relevant to building organizational capability to undertake innovation. These themes are then explored and summarised in the discussion. The thematic extraction data analysis which underpins the analysis is available from the authors.

THEMES IN THE LITERATURE: THE INNOVATION SCORECARD

The literature on public innovation covers a wide range of issues and approaches to innovation. It includes internal organizational processes such as leadership, developing a climate for innovation, strategy and so on. It also includes the impact on the organization of governance and policy issues, given that all innovation is influenced by its external environment (Fagerberg, 2004). This is especially the case for public service organizations, which provide services to citizens. In making sense of such a wide set of literature contributions, we sought out a framework which would help us make sense of this range. We examined and compared a number of potential frameworks to use in this review. We selected the public sector innovation framework developed by Enterprise Ireland and IDA Ireland, (both Irish state economic development agencies) as the most suitable because it has the strongest emphasis on organizational factors which could be used to guide the development of organizational capability.

The Enterprise Ireland/IDA Ireland framework is built on the foundation of the new international ISO 56000 guidance standards on innovation management. This standard explicitly recognises that:

An organization's ability to innovate is recognized as a key factor for sustained growth, economic viability, increased well-being and the development of society.

The innovation capabilities of an organization include the ability to understand and respond to changing conditions of its context, to pursue new opportunities and to leverage the knowledge and creativity of people within the organization in collaboration with external interested parties.
(ISO 2020, p.V)

In developing this framework for application specifically to public sector organizations, Enterprise Ireland highlights both the background and importance of a standardised approach to innovation management. Specifically, they emphasise that:

The ISO 56000 Series of guidance standards on Innovation Management has been developed by innovation experts from across the world. It provides international best practice on the systematic management of innovation activities in organisations of all types and all sizes.

Public service organisations that proactively manage innovation activities as outlined in the ISO 56000 series will ultimately be more likely to take effective action and achieve sustained success by systematically addressing user needs.

(DPER, 2021, p.3)

The public sector innovation framework presents the key practical areas for organizations in five key groups:

1. Leadership & Planning
2. Organisation Context
3. Innovation in Action
4. Supports
5. Evaluation and Improvement

The EI framework is presented below.

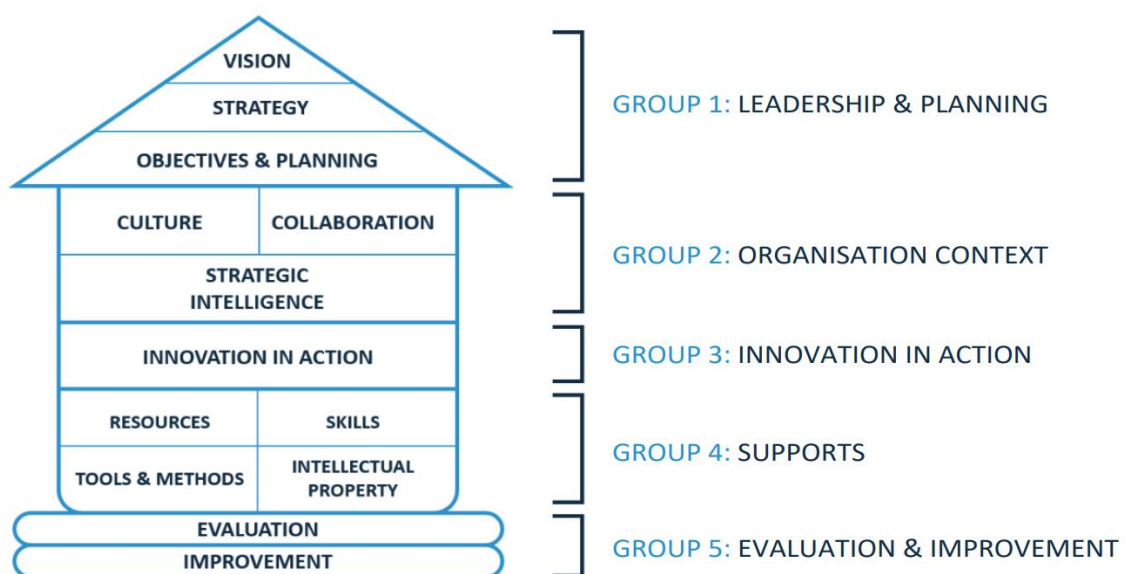


Figure 1: EI/IDA Public Sector Innovation Framework

This framework has been applied in the present literature review and report. However, the authors have adapted it slightly to allow for the impact of policy and governance. In this context, Policy and Governance are overarching influences on innovation within public sector bodies, and are shown in the modified framework below.

This is because policy and governance provide the legal, regulatory and policy parameters within which it is possible for public organizations to create, sustain and share innovations. They provide barriers and opportunities for innovation. However, given the complexity of governance regimes and also the focus of this review on organizational processes, barriers and facilitators, the policy and governance context is only mentioned where it is already raised in organizationally-focused articles. It is consequently only analysed to the extent that it affects organizational capability.

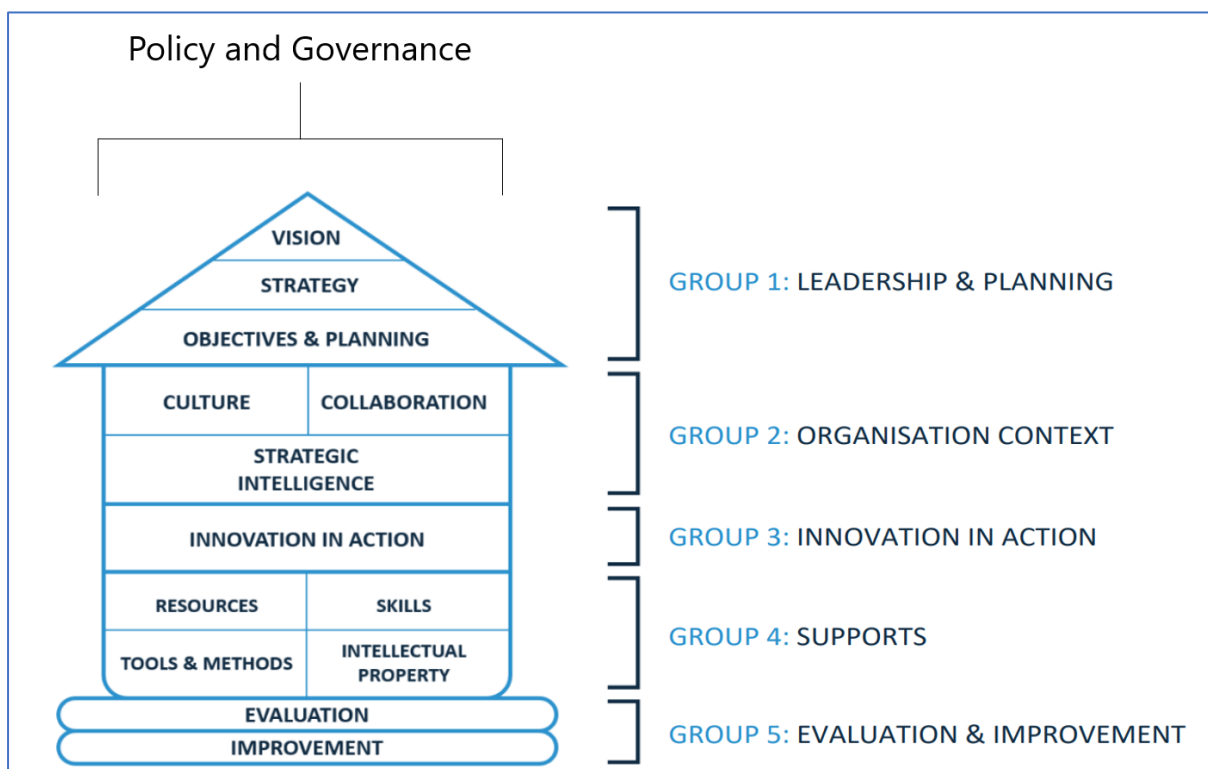


Figure 2: Adapted EI/IDA Public Sector Innovation Framework

METHODOLOGY

Our approach to this systematic literature review drew upon the process utilised in previous public sector innovation reviews, including de Vries et al. (2016) and Voorberg et al. (2015).

Advisory guidance and support were also received from Professor Rolf Rønning, Inland Norway University; Professor Lars Fuglsang, University of Roskilde, Denmark and Dr Karin Geuijen, University of Utrecht, The Netherlands.

The key parameters of the approach taken are summarised below.

- Language: only English language research was included
- Publication status: only articles from peer-reviewed journals were included
- Years of publication: to ensure the most up-to-date findings our search was limited to articles published between 2010 and 2021 inclusive

Search strategy

Search was focused on two widely-used academic databases, Ebsco and Scopus. Search terms were derived from subject terms and terminology utilised in previous public innovation reviews including de Vries et al. (2016), de Vries et al. (2018) and Hartley (2006). Key search terms applied included: public innovation, public services innovation, public + innovator etc. Wildcard variants on these terms were also included (e.g. “public innovate*”) in order to capture the widest body of relevant literature. Given the context of and background to this report, search terms related to police innovation and policing innovation were also include.

Additionally, we undertook a targeted search of key peer-reviewed journals which focus on public management and related questions using search terms related to innovation.

Specific search strings utilised and details of journals included are available from the authors.

Screening process

The above search strategy returned 782 papers for screening once duplicates had been reviewed (835 total).

These were then screened for inclusion through a multi-stage process. Each step was undertaken independently by each co-author. Criteria for inclusion included:

- Peer reviewed article
- Book reviews were excluded
- Articles focused solely on policy, governance or change were excluded and only analysed to the extent that they impact on organizational capability
- Normative papers were excluded

Any differences were then discussed and a mutually-agreed decision on whether to include or exclude a paper was taken. Inter-rater reliability was very high at each stage.

Steps taken were as follows:

1. Article titles were screened for relevance (273 papers retained)
2. Article abstracts were screened for relevance (139 papers retained)
3. Articles were reviewed in full by each author (86 papers retained for inclusion)

Each paper was then fully analysed by each author with data captured in standardised Thematic Extraction Sheets.

The stages of the screening process are summarised in the following diagram:

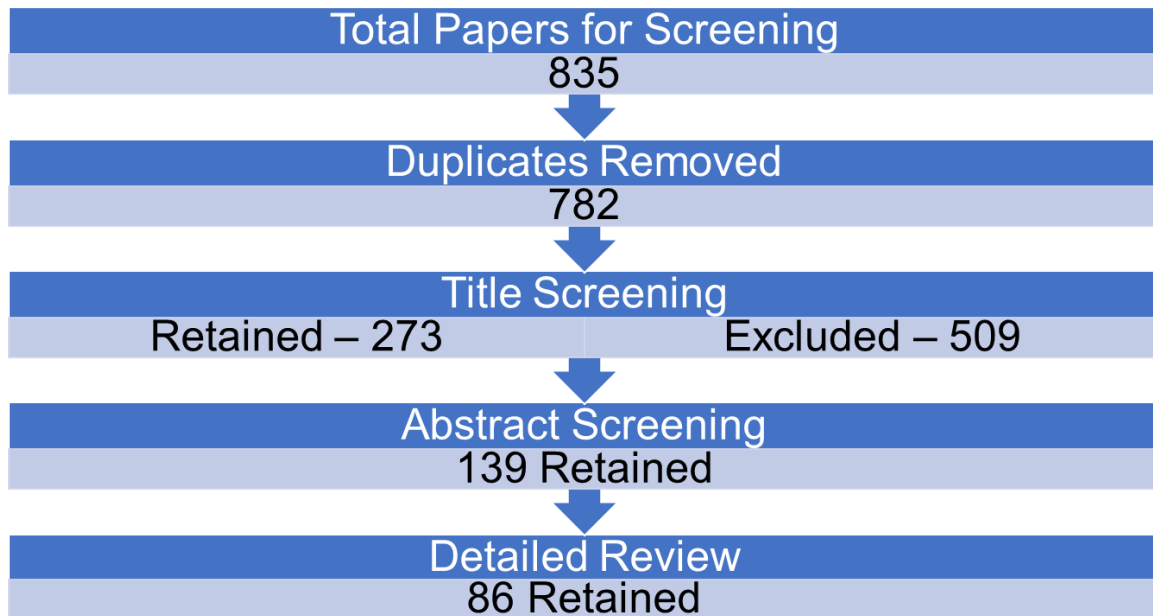


Figure 3: Literature screening process

FINDINGS

The following sections present the key findings of the literature review undertaken, with review outcomes mapped to five organizational themes. These align with the ISO56000 groupings:

1. Leadership & Planning
2. Organisation Context and Processes
3. Innovation in Action
4. Supports
5. Evaluation and Improvement

As highlighted in the image below, the literature reviewed is dominated by discussions of *Organisation Context* and *Innovation in Action*. The area of least focus was *Evaluation & Improvement*, with *Leadership and Planning* and *Supports* also gaining a degree of discussion. As already highlighted, questions of policy and governance and their impact on innovation are outside the scope of this report.

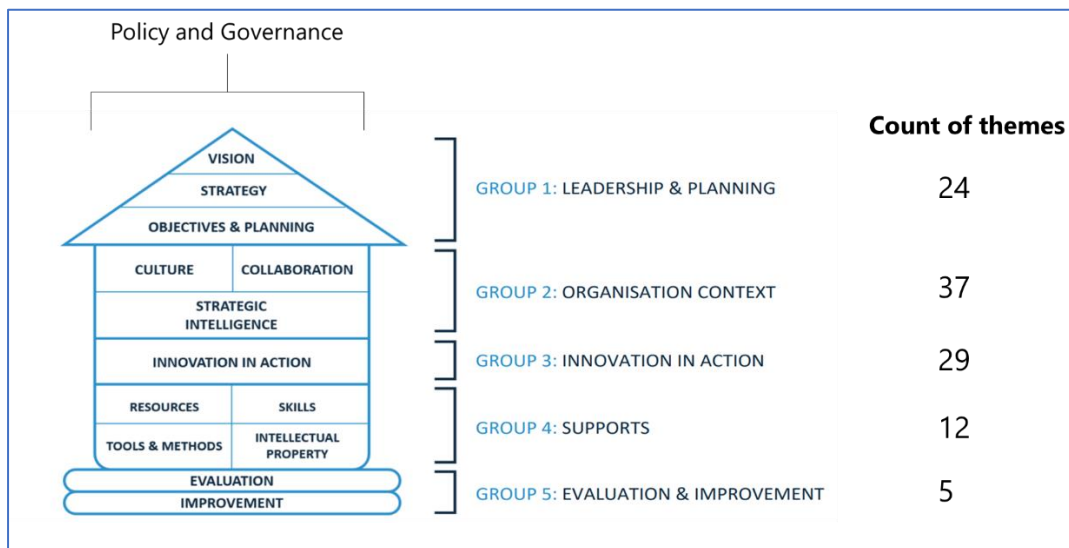


Figure 4: Count of articles per thematic area

The findings for each of these key areas are reviewed in turn below.

Group 1: Leadership & Planning

The review found a number of articles relevant to Group 1 i.e. Leadership & Planning and the authors grouped them in the following way

- Leadership, including champions and promoters
- Ethics
- Accountability
- Approaches to management

Key findings from the literature for each of these areas are discussed in turn below.

Leadership

Leadership is widely seen as a key organizational driver of innovation and has arisen in several previous literature reviews (e.g. de Vries et al, 2016; Hartley, 2006) as well as being a key theme in innovation studies in general (Schumpeter, 1934; Damanpour, 2020). This is not surprising given that leadership is seen as a key aspect of any type of organisational change. There were a number of papers which addressed leadership, though perhaps with less depth and insight than might have been hoped for.

A key theme running through the reviewed literature was that of the appropriate leadership activities and styles to support greater innovation within a public sector context. Particular questions emerged relating to the relative effectiveness of transactional compared to transformational leadership in a public sector context. Martin and Fellenz (2017, p.179) define these two approaches to leadership as follows:

Transactional leaders tend to focus on providing rewards for effort; they function on the basis of managing by exception and with a laissez faire management style.

Transformational leaders tend to focus on providing a clear mission and instilling pride in the workforce while having high expectations, so gaining respect and trust; they function by adopting a rational and careful problem-solving approach to the tasks to be achieved while being focused on a coaching management style.

In essence, while the relationship between transactional leaders and their followers is mediated through a transactional and at times “carrot and stick” approach, transformational leaders tend to take a more development and motivation-oriented approach. Both have been found to be valuable in organizational change in different ways.

In examining innovation leadership in a large public hospital in Denmark, Günzel-Jensen et al. (2018) examined aspects of both transactional and transformational leadership, and in particular the impact on each of an empowering leadership style. Their key finding was that the relationship between transformational leadership and innovation is highly dependent on empowerment. More specifically, they find that in

a public sector context “Transformational leadership becomes more positively related to innovative behavior the higher the level of empowerment leadership” (Günzel-Jensen et al., 2018, p.966), or to put it more succinctly: “empowering leadership is a strong predictor of innovative behavior” (Günzel-Jensen et al., 2018, p.964). Consequently, they emphasise that it is crucial for leaders of innovation to understand how various leadership styles can be employed jointly or in combination.

Kim and Yoon (2015), in an assessment of the impact of transformational leadership on the climate for creativity in a Korean local government, also found a positive link between transformational leadership and innovation. Based on a survey of 1576 employees of Seoul Metropolitan Government, the authors established a strong correlation between employee perceptions of transformational leadership and perceptions of a culture of innovation. More specifically, they found that:

the degree to which an employee perceives senior managers' transformational leadership is positively related to the degree to which the employee perceives a culture of innovation. The findings of the study also indicate that the climate for creativity - through enhancing the recognition of employee creativity, the flexibility to change, and resources for innovation - is significantly associated with employees' perceptions of a culture of innovation. (Kim and Yoon, 2015, p.147)

Importantly, however, Kim and Yoon (2015) do not entirely discount the importance of transactional leadership, highlighting that it can play a vital role in further supporting the embedding of a culture of innovation and noting variations between various agencies within the authority.

On the other hand, Ricard et al. (2017), in a survey of public leadership styles utilised by 365 senior public managers in three major European cities – Copenhagen, Rotterdam and Barcelona – found least support for a transactional approach to leadership as a driver of public sector innovation. Rather, they found much greater support for an ultimately more nuanced approach to leadership, integrating aspects of transformational leadership and focusing more motivating teams and supporting greater risk-taking and more inclusive decision-making.

Van der Wal and Demircioglu (2020) comment on ethics and leadership, which is covered below.

Empowerment

The importance of empowerment as a leadership practice is further emphasised by Fernandez and Moldogaziev (2013) who draw upon a dataset of over 200,000 respondents to the US Federal Human Capital Survey, 2006. Importantly, their perspectives on human motivation align closely with the arguments put forward by Amabile (2013) when she argues that extrinsic rewards have a significantly more deleterious impact on innovation than intrinsic rewards or recognition.

Key amongst Fernandez and Moldogaziev's (2013) findings are that:

Empowerment practices aimed at granting employees discretion to change work processes and at providing them with opportunities to acquire job-related knowledge and skills are strongly, positively correlated with employee encouragement to innovate. These results confirm a consistent pattern reported in the innovation literature: organizations that grant employees ample opportunities to exercise discretion and to learn and grow tend to be more innovative than others. It is also found that attempting to empower employees by offering rewards based on performance, when performance is defined in terms of outputs and outcomes, inhibits innovativeness. Rewarding short-term performance, as pay-for-performance schemes often do, seems to foster a myopic mindset among employees, causing them to settle for proven ways of doing things while eschewing disruptive changes that might produce only long-term gains. Interestingly, rewarding innovative changes in processes rather than outputs and outcomes seems to encourage innovation... The practice of empowering frontline employees by providing information about goals and performance is ineffective when used alone, but in combination with other empowerment practices may produce small gains in innovativeness.

(Fernandez and Moldogaziev (2013, p.177)

While not immediately translatable to a UK public sector context, it is important to acknowledge the research by Miao et al. (2018) who examined the links between public sector innovation and leadership styles amongst Chinese civil servants. In looking at the interplay between entrepreneurial leadership and empowerment, they define entrepreneurial leadership as follows:

Entrepreneurial leaders not only encourage their subordinates to experiment and innovate in the workplace, but also they act as role models for their subordinates by engaging in entrepreneurial activities themselves and encouraging subordinates to emulate that behavior (Meijer, 2014). They generate ideas and creative solutions to problems, challenge the status quo, create a climate of innovation by encouraging risk taking, and tolerate failed ideas. Entrepreneurial leaders also provide critical resources for innovation, such as time, equipment, and facilities (Scott and Bruce 1994).
(Miao et al., 2018 p.73

In viewing innovation leadership from this perspective, Miao et al. (2018) find that empowerment – most particularly in terms of meaning and impact – is of crucial importance in driving greater innovation-related behaviours, while motivation through enhanced meaning and competence also plays a vital role.

Champions and Promoters

In an examination of the role of champions and promoters of innovation in the Australian public service, Bankins et al. (2017, p.123) argue that “the hierarchical and power-dependent nature of the public sector drives the need for multiple innovation agents, both champions and promoters at multiple organisational levels,

to navigate the complexity and barriers to innovation that characterise this organisational context”.

Key to their argument is the acknowledgement of the impact of these hierarchies within the public sector and the role that hierarchies can play as barriers to subsequent innovation. The importance of these distinctions is borne out by their definitions of innovation champions and promoters respectively, specifically: innovation champions are “the individuals who emerge to take creative ideas.....and bring them to life’ (Howell and Higgins 1990: 40)”, while innovation promoters are “those with specific power bases who help overcome organisational barriers to innovation” (2017, p.122). Key to their argument is the assertion that it is not just about the manager themselves being a champion or promoter, but also how they select and promote internally for such roles. Importantly, Bankins et al. (2017) also highlight that the champion and promoter roles can be held concurrently by the same individual with an ultimately positive impact on the innovation process.

The role not just of public servants but also politicians should also be considered as both can act as champions and promoters, a point emphasised by Korac et al. (2017) based on a survey of over 600 mayors and managers from Austrian local government. They emphasise that “in the majority of democratic systems and across governmental levels, public organizations are characterized by a dual leadership of politicians and public managers. The implementation of innovation therefore requires the support and joint action of both parties” (Korac et al., 2017, p.566). Thøgersen et al. (2021) also found that politicians were significant drivers of innovation (covered in more detail below).

The interchange between the public sector and politics is also considered by Lapuente and Suzuki (2020). In examining attitudes toward innovation across 19 European countries, Lapuente and Suzuki (2020) considered both the level of the managers and also the degree of politicisation. They evaluated the attitudes of senior public managers to innovation on the basis of their “(1) receptiveness to new ideas and creative solutions, (2) change orientation, and (3) attitudes toward risk” (Lapuente and Suzuki, 2020, p.455). Key amongst their findings was that “Public managers working in politicized administrations and those whose education includes a law degree exhibit lower pro-innovation attitudes (i.e., receptiveness to new ideas and creative solutions and change orientation)” (Lapuente and Suzuki, 2020, p.454). They further concluded the following:

Bureaucratic politicization... has a negative impact on receptiveness to new ideas and creative solutions... However, no statistically significant impact of politicization on risk attitude is found. As for legalism in personnel systems..., legalism does not have a significant impact on receptiveness to new ideas and creative solutions and risk taking. However, it has a negative influence on change orientation...

(Lapuente and Suzuki, 2020, p.461)

They go on to emphasise that:

Public managers tend to exhibit more innovative attitudes, first, when career advancements in a country's public sector largely depend on their performance, and not on their political connections; and, second, where the job market is open to diagonal movements to other public agencies or the private sector (Lapuente and Suzuki, 2020, p.463)

The points made by Lapuente and Suzuki (2020) would arguably support greater use of secondments into other public- or private-sector organisations as a way to enhance innovation perspectives and greater progression.

Meijer (2014) considers the question of innovation champions from the perspective of distributed leadership (Ancona and Blackman, nd). This is tested against a qualitative case study from a public-sector innovation, CitizensNet, from The Netherlands. Key amongst the conclusions reached is that individuals play a significant role in driving innovation within public sector organisations. In particular, Meijer identifies three key roles within this context, each of which contributes specific benefits at various stages: "idea generators (creators and innovation entrepreneurs), idea managers (test managers, innovation packagers and innovation diffusers) and idea fighters" (Meijer, 2014, p.212). The idea fighter in this context is someone who is appointed to fight and advocate for innovations within ideas. While these roles are not necessarily linked to management roles, when considered in terms of distributed leadership the relevance to innovation champions and promoters becomes apparent.

Ethics and Accountability

Given the public sector context, it is perhaps no surprise that questions of ethics and accountability emerge from the literature, because means as well as ends are important in public services. However, what is surprising is that there is relatively little research on these vital two areas which reveals a significant gap in the literature.

In considering the innovation-ethics nexus, Van der Wal and Demircioglu (2020) drew upon a sample of over 80,000 respondents to the 2017 Australian Public Service Census in order to empirically examine the links between ethical culture and ethical leadership on the one hand and innovation on the other. Their key finding is that "in supporting public sector innovation, ethical culture and ethical leadership matter, mirroring previous empirical findings about the generic effects of culture and leadership" (2020, 395). Crucially, however, Van der Wal and Demircioglu find that while ethical leaders in general have a positive impact on a culture of innovation, this finding is less significant when considered in terms of senior managers (2020, p.398).

In parallel to discussions of ethics, Ringholm (2017) considers the various forms of accountability and how they link to innovation in a municipal context in Norway. In particular, this approach highlights the tension between various forms of accountability which govern the work of officials in that context – political, legal and administrative accountability, but also professional accountability based on professional codes of conduct. Curiously, while emphasising the ambiguity which can arise from this tension, Ringholm also found that professional accountability was a key driver for the innovations examined. This stems in part from the greater

involvement of the public sector employees in all phases of the innovation process, whereas the involvement of elected officials varied. As Ringholm puts it: “while the unit leaders and the professionals—the ordinary employees—were to a quite large extent involved in the initiation and development phases of the innovation, the ordinary politicians were only involved in the decision-making phase. This gave professional accountability a lot of weight when the real decisions about the shape and function of the innovation were being made” (Ringholm, 2017, p.14).

Governance and policy as context

Although governance and policy are the context rather than the focus of this literature review, some elements stand out as influencing management and leadership. This is most particularly in terms of the governance regimes of New Public Management, New Public Governance and Traditional Public Administration.

Ferlie (2017) asserts that New Public Management (NPM) typically involves “a bundle of radical changes, including privatization and contracting out, marketization of services still inside the public sector, and stronger performance management and managerialization. A typical NPM governance mode is a markets-and-management mix combining more competition among public services agencies with stronger line management within them”.

This approach contrasts with New Public Governance, which can be defined as follows:

Whereas New Public Management tends to view public monopolies as the key problem and enhanced competition as the preferred solution, New Public Governance tends to see complexity and fragmentation as the key challenge and the formation of interactive forms of collaborative governance that cuts across organizational and institutional boundaries as the way. New Public Governance replaces the intraorganizational view and the input and output focus of New Public Management with an interorganizational approach to governance and a focus on processes and outcomes.
(ECPR, 2013)

While the implications of NPM are many and varied, the impact on innovation is largely considered and can often be limited (Hartley et al., 2013). Drawing on an assessment of a co-production pilot project in the Finnish city of Tampere, Tuurnas (2015) is damning in their view of the impact of NPM, arguing that:

the NPM-based environment hampers the innovativeness of professionals as co-production initiators. The sectorial barriers in the current public service system seemed to cause professional introversion, as the professionals concentrated on increasing cross-sectoral co-operation instead of looking out for new partnerships with the non-public actors.
(Tuurnas, 2015, p.593)

This purported outcome of an NPM-approach might be explained by the apparent path-dependency highlighted by Aagard (2012) and the barriers to innovation which this can create – though he equally sees this same process resulting from

Governance-based approaches. This is discussed in further detail the section on Barriers below.

Although recognising that different governance approaches bring certain challenges, Hartley et al. (2013) highlight that it is important to understand the strengths, weaknesses and applicability of each governance regime. They further emphasise that the choice between different strategies for enhancing public innovation is contingent rather than absolute, and situational dynamics – including the challenge posed by policy and governance questions – should be taken into account. As Hartley et al. (2013) note,

This involves considering the purposes of innovation; the quality, dynamism, and interconnectedness of the services; the organizational forms that foster or inhibit innovation; the ownership and engagement by stakeholders in the implementation of innovation, not just its initiation; the power balances and imbalances among stakeholders; and the creation of public value.
(Hartley et al., 2013, p.828)

Wynen et al. (2017, p1142) warn that a focus on governance regimes and structures can be problematic: “organizational turmoil generated by repeated structural reforms reduces innovativeness and suggest that too many structural reforms imposed in a too short time span will have detrimental side effects”. In examining various waves of reform in the Belgian public sector they conclude that:

structural reform histories significantly impact the degree to which organizations possess an innovation-oriented culture. Organizations that had recently undergone trajectories of severe and frequent structural reforms were shown to possess a relatively lower score on our items of innovative culture (corrected by scores for usage of innovative management techniques). This effect remained significant after controlling for other factors which have been suggested as antecedents to innovation-oriented organizational culture, specifically task, type, size and age variables...
(Wynen et al., 2017, p.1156)

In drawing together these various perspectives on governance and management, Sørensen and Torfing (2017) examine the influence of metagovernance – defined by Kooiman (1993) as the “governance of governance”. In so doing they specifically highlight the importance of the leader or metagovernor. Through an examination of care services for the elderly in Denmark, they assert that “a specific metagovernance strategy is needed when the purpose of networking is to improve public performance through disruptive innovations rather than incremental improvements of existing practices” (Sørensen and Torfing, 2017, p.827). They conclude that:

An innovation-enhancing metagovernance strategy must explicitly seek to include actors with different backgrounds and perspectives who together possess the relevant innovation assets. It must also assist network actors in creative destruction by encouraging joint development and testing of new and bold solutions and supporting the diffusion of successful innovations to relevant audiences. In short, metagovernors of collaborative innovation in

networks must *harness diversity, create appropriate disturbance, and recruit innovation ambassadors.*

(Sørensen and Torfing, 2017, p.837; original emphasis)

In referring to the need to include stakeholders from a range of backgrounds, Sørensen and Torfing (2017) implicitly highlight the role that those from other areas of government and policy sectors can play in supporting the process, as well as citizens and civil society groups.

Throughout this process, the vital role of government should not be ignored. Hjelmar (2021) suggests that governments should take a more interventionist approach to ensure that innovation is institutionalised. More specifically, he argues that “the government has a unique ability to provide a direction for actors and to steer the innovation system as a whole. Governments can ensure stable framework conditions, institutions and innovation policies, and this leads to an institutionalization of public sector innovation” (Hjelmar, 2021, p.63).

Strategies and goals for innovation

Tidd and Bessant (2009) emphasise that an effective innovation strategy should help find answers to four key questions:

- How can we find opportunities for innovation?
- What are we going to do, and why?
- How are we going to make innovation happen?
- How are we going to get the benefits from innovation?

While most often framed in terms of private sector organisations, these questions are just as crucial for public sector organisations and their absence is notable. While other frameworks are available, this is a simple set of questions which can be used by a range of innovators and change-makers.

Although strategies for dealing with various innovation-related challenges and contexts are highlighted in the literature (see, for example, Gieske et al., 2020; Hartley et al., 2013; Meijer and De Jong, 2020), the reviewed literature is largely silent on the question of innovation strategies at a macro level.

In a detailed review of the public sector innovation literature, De Vries et al. (2016, p.154) found that over a third of the literature reviewed failed to mention any specific innovation goals. This includes those studies which focused more on the innovation process itself rather than actual goals (e.g. Piening, 2011). Similarly, a range of studies were more focused on outcomes such as effectiveness or efficiency (e.g. Kim and Lee 2009), including those from a healthcare context where government-led New Public Management (NPM) policies were evident (e.g. Turner et al. 2011). Goals related to citizen involvement were also highlighted by other papers (e.g. Carter and Bélanger, 2005).

Concluding remarks

Questions related to leadership are found in various forms throughout the literature. These range from direct discussions of leadership styles and activities for innovation through to questions of ethics, accountability and management. Needless to say, leadership and related questions pervade all aspects of organisational processes and will be touched on in other sections of this review.

Summary points

- *While leadership is context specific, transactional approaches appear to be least effective for initiating innovation*
- *Public service leaders play a key role in championing and promoting innovation, and should seek to empower their teams to innovate*
- *Ethical approaches to leadership are vital for public innovation and can guide practices and approaches*
- *Governance frameworks within public sector contexts can significantly impact innovation and should be managed carefully*
- *As with private sector contexts, an innovation strategy is valuable to drive effective public innovation*

Group 2: Organisation Context and Processes

Innovation factors related to Organisation Context include the following key areas, each of which is examined in turn:

- Antecedents, including Drivers and Barriers
- Culture & Climate
- Context / Environment
- Organisational ambidexterity
- Networks
- Trade Unions and Staff Associations

Antecedents of innovation

The nature and type of antecedents or contextual precursors of innovation is explored in a number of papers. Following de Vries et al. (2016, p.155) we consider antecedents as including both drivers of innovation and barriers to innovation.

Looking at antecedents more broadly, a meta-analysis of 17 published papers and reports by Walker (2014) considered both internal antecedents – organizational size, slack resources, administrative capacity and organizational learning – and external antecedents – the needs of the population served wealth and urbanization – in relation to process innovations in public sector bodies. The key finding of this review was that when it comes to innovation, “internal antecedents matter more than their external counterparts do, and that the internal determinants reviewed – organizational size and administrative capacity – are particularly important explanatory variables” (Walker, 2014 p.40).

A key antecedent of public sector identified in the literature is capacity. Meijer (2019) defines public innovation capacity as “the capacity to develop and realize new ideas for societal problems” (Meijer, 2019, p.618). From this, Meijer (2019) develops a model (and subsequently assessment) of innovation capacity based on five key functions which, he argues, governments should fulfil in order to stimulate public innovation, namely: “mobilizing, experimenting, institutionalizing, balancing, and coordinating” (Meijer, 2019, p.619).

Salge (2011) similarly explores the importance of slack and the role of capacity as a driver for innovation practices, most particularly innovative search. Drawing on research in public hospitals in England, Salge (2011) found two key approaches to innovative search: problemistic search based on a problem to solve or address, and slack search based on the availability of spare resources to be utilised. His findings indicate that “public service organizations with high levels of available slack are most likely to engage in problemistic search following perceived performance shortfalls. Similarly, it is assumed that problemistic search is most salient among organizations with full regulatory endorsement. Conversely, when endorsement is low, slack search gains in importance” (Salge, 2011, p.181).

The role of slack as an antecedent of innovation should consequently not be underestimated. Notably, de Vries et al. (2016) highlight slack capacity in the form of time,

money and ICT facilities as the most important antecedent found in the literature reviewed. A link can arguably be made here to the some key elements of capacity traditionally experienced by policing bodies, including demand for services, funding and technology.

Undertaken in the context of Austrian mayors and public sector managers, Korac et al. (2017) found that while both politicians and managers identified similar types of innovation they disagreed on antecedents. Politicians were found to respond primarily to contextual factors and also public pressures from media and service providers, whereas managers were more strongly impacted by the experience of other local government authorities and the expectations of citizens.

Finally, Thøgersen et al. (2021) examined the influence of organisational antecedents on public manager's perceptions of innovation value creation. In analysing 2363 responses by public managers in Denmark to the Danish national Innovation Barometer survey they found that:

quality is reported significantly more frequently when employees initiated the innovation than when they did not and substantially more when the innovation was stimulated rather than impeded by employees. Innovations initiated by politicians receive fewer reports of increased quality, efficiency and employee satisfaction than innovations that were not initiated by politicians. However, significantly more managers report having increased citizen involvement if politicians supported the innovation process.
(Thøgersen et al., 2021, p.1269)

Curiously, given the distinctions identified by Korac et al. (2017), Thøgersen et al. also found that "innovations introduced by politicians resulted in fewer public managers perceiving to have created public value". (Thøgersen et al 2021, p.1271).

In terms of antecedents of innovation, it is consequently vital that the different perspectives of key stakeholders – including both politicians and public sector managers – are considered.

Antecedents of Innovation – Drivers

In comparing attitudes in schools in Denmark and Texas, Andersen and Jakobsen (2018) found that top-down pressure – including from a new principal – was a key driver of innovative practices. This contrasted with any potential desire to conform with existing institutionalised models or feedback on performance from other organisations. They consequently argue that hierarchical relationships remain a key driver of innovation in public sector organisations, more so than learning from peers.

The top-down vs bottom-up perspective is also considered by Demircioglu (2021) who draws upon extensive survey data from the Australian Public Service Survey to consider links between innovations and employee satisfaction. Key amongst the findings was that "while top-down innovations do not have a statistical impact on employee job satisfaction, bottom-up innovations are positively associated with employee job satisfaction" (Demircioglu, 2021, p.155). While in itself distinct from other drivers, the importance of job satisfaction as a driver and, indeed, motivator of innovation is noteworthy.

As with Demircioglu (2021), Saari et al. (2015) also considered the interplay between top-down and bottom-up innovation. By integrating two cases from child-care agencies in Finland they argued that “it is critical that managers make the bottom-up innovation processes meet top-down processes in order to gain wider impact” (Saari et al., 2015, p. 339). Key to making this work, they argue, is the effective utilisation of coordinating mechanisms including both group and personal modes.

Rather than looking at internal or organisational factors, Simmons and Brennan (2017) highlight the way that feedback from the public can act as a driver of innovation. In particular, they focus on the role of user voice and customer complaints in public sector innovation, and in so doing draw links between what they term consumer knowledge management (CKM) – “how consumer knowledge is valued and managed” – and consumer knowledge-enabled innovation (CKEI) – “how innovation is captured from this” (p.1089). In drawing together their conceptual model and testing it against a number of UK-based case studies, Simmons and Brennan (2017) highlight the role that complaints – “an underutilized source of knowledge” (Simmons and Brennan, 2017, p.1100) – can play in driving innovation when combined with the perspectives of other stakeholders. Together, Simmons and Brennan argue that these can contribute to the development of a “public service-dominant approach” (2017, p.1100), to enhance public service customer experience and outcomes. While this implies a necessity for organisational readiness for innovation, as Maranto and Wolf (2013) highlight, there is a need for a more data-driven approach to support the development of learning within organisations, leading ultimately to greater and better-informed innovation.

Linked to these perspectives, Djellal et al. (2013) attempt to draw together various strands of research on services innovation as it applies to the public sector. While they assert that service innovations can be viewed from various different theoretical perspectives, Djellal et al. (2013) ultimately conclude that many of the lessons from the private sector can also be applied to the public sector:

The processes for generating creative ideas, and for selecting among them to develop some into applicable innovations, are many and varied in public services, just as they are across service industries more generally. Many of the general features of innovation processes noted in innovation studies more generally may be expected to apply to the dynamics of public service innovation, as we have seen. The specific points raised in studies of innovation in large systems and of service innovation are liable to be particularly relevant ones.

(Djellal et al., 2013, p.114)

This suggests that when considering drivers for innovation within the public sector, consideration should also be given to some drivers evident in the private sector.

One such driver which can impact on innovation in both public and private sectors is demographic changes. Suzuki et al. (2020) consider the impact of demographic

changes – both through inward migration and population decline on local government innovation in Japan. Based on a survey of over 500 local governments they found that where demographic decline was anticipated, the visibility of innovation is greater. Intriguingly, Suzuki et al. (2020) also found that “too little or too much demographic pressure hampers municipalities’ innovation efforts” (Suzuki et al., 2020, p.365). This ultimately suggests that a balance of demographic pressures is key for optimal innovation outcomes.

Antecedents to Innovation – Barriers

Barriers to public sector innovation are discussed in a wide number of the papers reviewed, and across a disparate range of contexts.

Cinar et al. (2019) provide a systematic literature review focused on assessing the key barriers to public sector innovation processes. From this they identified a total of 235 barriers to innovation which they categorised by four key areas: organisational barriers, interactional barriers between innovation partners, barriers related the nature of the innovation being undertaken, and contextual barriers. These are summarised in the table below (though it can be noted there are a number of evaluative rather than descriptive or analytical comments in the summary).

<p>Organisational barriers (Ranked most common to least common)</p>	<ol style="list-style-type: none"> 1. Ineffective administration of process activities 2. Resistance or lack of support from specific actor(s) 3. Lack of available resources 4. Rigid organizational structure/culture 5. Lack of skills/knowledge/expertise
<p>Interaction barriers (Ranked by most common level of interaction to least common)</p>	<ol style="list-style-type: none"> 1. Public sector organizations 2. Citizens & NGOs 3. Businesses as contractors 4. Political entities 5. Businesses as users or co-creators 6. International organizations 7. Partner unclear
<p>Innovation characteristics (Ranked most common to least common)</p>	<ol style="list-style-type: none"> 1. Incompatibility 2. Complexity 3. Switching costs 4. Lack of interoperability 5. Platform/software problems 6. Inflexibility 7. Other
<p>Contextual barriers (Ranked most common to least common)</p>	<ol style="list-style-type: none"> 1. Laws, regulations 2. Lack of standardisation 3. Geography 4. Other
<p>Process stages and barriers (Ranked most common to least common)</p>	<ol style="list-style-type: none"> 1. Idea generation and selection 2. Development and design 3. Implementation 4. Sustainment

Table 1: Barriers to innovation (Adapted from Cinar et al., 2019)

Aagaard (2012) looked specifically at both the barriers and drivers of public innovation in the area of crime prevention. In outlining the underlying mechanism leading to these outcomes, Aagaard highlights the multifaceted impacts and outcomes driven by what he terms the “two steering paradigms” – NPM and New Public Governance:

“Through processes of increasing returns the two steering paradigms create barriers for innovation, and through processes of reactive sequences the two paradigms improve the innovative capability of project-based collaboration. The strategic challenge for public organizations is to be aware of their path-dependency and to find an appropriate mix of institutional elements that enables innovation in the field”
 (Aagaard, 2012, pp.13-14)

The barriers identified by Aagaard in his analysis are summarised in the table below.

	Drivers	Barriers
NPM	<ul style="list-style-type: none"> • Increased focus on strategic management in the form of more strategic work. • Increased focus on goals and results through evidence-based work. • Increased formalization in the form of a new committee structure and project organisation. 	<ul style="list-style-type: none"> • Evidence based work and evaluations take time. • Too strong a focus on results and goals (instead of process) in the form of a massive investment in the project organisation. • Top-down oriented managerial thinking among the members inhibits cooperation and weakens ownership. • Rational planning inhibits entrepreneurial behaviour.
New Public Governance	<ul style="list-style-type: none"> • The experience of interdependence creates some support among the member organisations. • The experience of added value for the single member organisations promotes ownership to a certain extent. • Inclusion of the members strengthens knowledge sharing and trust to a certain extent among the members. 	<ul style="list-style-type: none"> • Managerial vacuum in the form of uncertainty about authority and managerial responsibility. • Consensus-thinking blocs new ideas, because balancing of interest is time demanding. • The facilitation of the network cannot in itself create increased interdependence or hinder the ambiguous mandates the member representatives are given by their organisations.

Table 2: Drivers and barriers of public sector innovation in crime prevention (Adapted from Aagaard, 2012, p.12).

In examining the implementation of innovative ideas in a city context, Brorström (2015) highlights how delays in the process can in themselves act as inherent barriers to innovation. A key finding in her research of a city organisation in Sweden was that systemic delays and time-consuming process can in some cases mean that innovation proposals lost their relevance or were no longer the best available by the time they came to be considered. This clearly suggests the importance of responsive, flexible and timely processes in public sector organisations for assessing innovative ideas, most particularly when engaging with the general public.

Stewart (2014), in contrast, highlights that the barriers to the implementation of innovation in a public sector context can be due to the inherently challenging nature of innovation, most particularly in terms of existing systems and processes. Unless managed carefully, the resistance to the innovation can lead a fundamental change in the nature of the innovation. In order to overcome these challenges, Stewart (2014) argues that flexible support systems may be necessary, including HR, finance and IT, and that leadership teams should potentially seek to develop partnerships between innovators and managers, and between leaders focused on creativity and operations.

Cinar et al. (2021) explored the practical barriers to innovation in Italy, Japan and Turkey, based on an analysis of 99 questionnaires submitted to the UN Public Service Awards. Their key findings were that in itself collaboration – often a key part of the innovation process – can add further barriers and complexities, however these barriers may vary by innovation type. Crucially, Cinar et al. (2021) emphasised that these barriers are dynamic and can be impacted by the tactics used to overcome them. While the approach varied by country, common tactics included reframing the innovation (rather than changing or “fixing”), modifying the innovation (most particularly technological innovations), holding meetings to demonstrate the benefits, and involving objecting stakeholders and groups in the governance of the innovation.

Drawing together various themes of the literature, and based on extensive quantitative research of the Australian Public service, Torugsa and Arundel (2016a, 2016b) examine barriers to public sector innovation from two varying perspectives. Firstly, in examining the complexity of the innovation itself, Torugsa and Arundel (2016a) found that while innovation complexity is typically associated with a range of beneficial outcomes, greater complexity can also lead to an additional range of barriers. To overcome this, they argue that “a broader (but selective) range of idea sources and a more decentralized workplace where both individual and team creativity is encouraged increase the likelihood of implementing complex innovations” (Torugsa and Arundel, 2016a, p.392).

In a subsequent paper, Torugsa and Arundel (2016b) examine workgroup perspectives on the most significant innovation (MSI) implemented. In doing so they draw on the concept of “revealed barriers” (D’Este et al. 2012) to explore how barriers can impact on innovation activity in workgroups. Perhaps counter-intuitively, they assert that “innovation activity *increases* awareness of the obstacles to innovation (the barriers are ‘revealed’) and the methods for circumventing them” (Torugsa and Arundel, 2016b, p.205; original emphasis). Torugsa and Arundel identified that manager risk aversion had the most negative impact on innovation,

most particularly in terms of service and service delivery. They argue that this might be due to the fear of negative publicity amongst public service leaders. This compares to other barriers which they find can have a positive impact on innovation, particularly in so far as they are revealed through the innovation process. These barriers include manager change resistance and ignoring ideas, budgetary restrictions, political uncertainty, an absence of incentives for innovation and technological barriers.

A link in this regard could potentially be made to the perspective put forward by Qiu and Chreim (2021), who adopt a *tension lens* perspective on barriers to innovation. Tensions, they argue, are “ ‘competing demands that are contradictory yet interdependent’ (Smith et al. 2017, 305). Tension is a characteristic of innovation because organizations often struggle between exploiting old certainties and exploring new opportunities” (Qiu and Chreim, 2021, p.1). Rather than viewing barriers to innovation as blockers or hindrances which should be overcome or minimised, Qiu and Chreim highlight that tensions can form an integral part of the innovation process, acting to drive it forward. Drawing on a case study of public sector innovation undertaken in Canada, they identify a number of key findings:

First, compared with the traditional barrier lens, a tension lens emphasizes the dynamic interplay among tension elements. While a barrier lens often produces a check-list type, one-of coping strategies, a tension lens embraces a more dynamic and complex perspective that focuses on engaging with the opposing forces to develop and adapt tension management strategies in response to the changing environment to drive the innovation forward...
Second, unlike the barrier lens that creates a divide between innovators and the rest of the organization, a tension lens stresses the importance of interactive problem solving...
Last but not least, the tension lens suggests an active approach to innovation management. From a tension lens, many tensions exist in organizations in a latent state (Hahn and Knight 2021). By evoking these latent tensions, innovations provide an opportunity for organizations to change.
(Qiu and Chreim, 2021, p.15)

Qiu and Chreim consequently conclude that “innovators would do well and not shy away from tensions but actively leverage the energy behind tensions to advance innovations” (Qiu and Chreim, 2021, p.15).

Culture and Climate

The importance of a culture of innovation has been widely recognised within the innovation literature, not least within the public sector domain. Similarly, the climate for innovation within teams and organisations is vital for their longer-term innovation success.

Wynen et al. (2014), in an extensive study of public sector innovation management across 5 countries – Belgium (Flanders), Italy, The Netherlands, Hong Kong and Romania – sought to clarify the impact of management practices on the innovation culture of public sector agencies in the context of New Public Management practices.

In examining the impact of various forms of public sector agency autonomy – financial management, personnel management and result control – they reached findings which:

support the assumption that granting a high level of managerial autonomy to these agencies is likely to bring about a more innovation-oriented culture in these agencies, which could be seen as a support for managerialist theories, arguments related to specialization, organizational legitimacy (Verhoest et al., 2007) or identity building.
(Wynen et al., 2014, p.59)

Curiously, however, the various forms of autonomy did not necessarily have the same positive impact. Specifically, “when high result control is combined with high financial management autonomy, no enforcing effects were observed. On the other hand, when agencies have high personnel management autonomy while being under high levels of result control by government, they will be less likely to exhibit an innovation-oriented culture” (Wynen et al., 2014, p.59).

In discussing gender-based differences in the perception of innovation climate within the Australian Public Service, van Acker et al. (2018) draw upon a definition from Chan et al. (2014) who assert that innovation climate can be regarded as “employees’ perception of the degree to which an organization supports and encourages its staff to take the initiative to explore creative ideas that foster innovation within the organization” (Chan et al., 2014, p. 2). Key amongst van Acker et al.’s findings is that gender based differences and, indeed, discrimination, are significant – and not necessarily in a positive way. Specifically, they highlight the impact on experience in the work place and the impact of these perceptions of an innovation climate on what they term Innovative Work Behaviours (IWB):

Our results demonstrate that women experience a less supportive innovation climate than their male colleagues, even in a public sector environment. The more negative perception of the innovation climate by women holds when controlling for issues such as education, workplace, length of service, and self-efficacy. Women are likely to encounter less support for new ideas than their male counterparts and feel less comfortable to voice these ideas in the first place. It is thus more difficult for women to engage in two of the three innovation stages identified in the IWB literature: innovation championing and innovation implementation.
(van Acker et al., 2018, p. 187).

While these findings are intriguing it should be emphasised that they relate to one study only. Further research in this area would be needed to replicate these findings.

In considering innovation in Italian E-government projects, Binci (2011) defined climate for innovation as “the shared perceptions of the policies, practices and procedures with regard to innovation. We consider climate for innovation an antecedent of implementation effectiveness” (Binci, 2011, p.50). To assess climate, Binci applied the Work Environment Scale (WES) developed by Moos (2008), and in particular four sub-scales related to system maintenance or change dimensions:

“clarity,” which describes how much employees know what to expect in their daily routine and how explicitly rules and policies are communicated; “managerial control,” which highlights how much management uses rules and procedures to keep employees under control; “innovation,” which focuses the emphasis on variety, change, and new approaches; and “physical comfort,” which represents the extent to which the physical surroundings contribute to a pleasant work environment (Binci, 2011, p.50)

Although drawing on a relatively small sample, correlations in terms of climate were nonetheless identified:

The strongest correlations are registered with clarity and innovation, which more directly reflect the perception of climate for innovation. All vary in the expected direction, with a lower intensity with regard to the control that shows a negative bond with the implementation. Climate for innovation is correlated with implementation effectiveness. (Binci, 2011, p.51)

While these assertions are no doubt valid, the importance of culture and climate should not necessarily be overstated as they are only element of the broader context for innovation.

With relevance to policing, in an analysis of the “TRYK Politi” (“Dial Police”) initiative in Denmark, Schultz Larsen (2015) highlighted what he terms the “ambivalence of culture”. This, he argues, is due to a range of conflicting factors evident through the Dial Police project:

On the one hand, the establishment of the innovation space, the support of participating in knowledge-sharing networks, and the learning-oriented attitudes toward assessing new ideas by a skilled, competent diversely composed staff played a pivotal role during the entire journey of Dial Police, as did the managerial support for Dial Police. These combined factors supported a culture of innovation..... [in] NSPD [North Seeland Police Department]. On the other hand, this culture relied on already established networks and was limited to its own organizational logic in which the inclusion of outside stakeholders and the citizens was limited and predominantly took the form of symbolic gestures and resource harvesting rather than the joint formulation of shared understanding of problems and solutions with a wider contingent of (potential) stakeholder. (Schultz Larsen, 2015, p.101)

Linked to this, moreover, were other project outcomes which Schultz Larsen (2015) argues had significant organisational and project related impacts and challenged existing ways of working. He continues by highlighting that:

The ambivalence of culture also came to an expression at another level. As an institutional innovation, Dial Police challenged established organizational boundaries and ... [threatened] to redistributed [sic] authority between

different organizational actors ... [i.e. North Seeland Police Department and Danish National Police] and highlights how contenting [sic] organizational cultures in bureaucratic organization compete to dominate the vision and division of the organization and how these struggles had a profound influence on both the success and the failure of Dial Police. (Schultz Larsen, 2015, p.101).

What is apparent is that climate and culture for innovation are not necessarily positive phenomena, nor do they automatically impact positively on innovation. As Meijer and Thaens highlight when exploring what they term the “dark side of public innovation”,

Public innovation processes require decision-making in situations of high uncertainty and the choice between different public values and these processes are fostered by limited external control. These conditions are often regarded from an instrumental perspective and characterize an innovation climate but, as we have shown, they also generate a host of perverse effects which are often already well acknowledged in the literature on the success and failure of governance (Meijer and Thaens, 2021, pp.149-150)

Context / Environment

Linked on a certain level to climate and culture are discussions of the context and environment in which public sector innovation takes place.

In a detailed analysis of results from the Australian Public Service Census – the equivalent to an annual employee survey – Demircioglu (2020) emphasised the importance of contextual variables. Key findings of that analysis were that “employees working in larger organizations and policy agencies tends to be less innovative whereas men, more educated employees, more experienced employees, and organizational managers are more innovative” (Demircioglu, 2020, p.1852).

Demircioglu’s findings should by no means be taken for granted, however. In terms of gender, a comparison should be made to the comments already noted by van Acker et al. (2018) who highlight the challenges faced by women in regard to innovation in a public-sector context. Similarly, and in terms of organisational size, based on a detailed analysis of the limits of innovativeness in English local government bodies, Walker et al. (2015) argue that larger organisations typically achieve better outcomes – including innovation outcomes – as they are more effectively able to spread fixed costs. Hartley et al. (2013) also emphasise the greater ability of larger organisations – including public sector bodies – to absorb the costs of innovation and innovation failure, as well as their greater depth of resources to invest in innovation.

Looking more broadly at the organisational context and environment for innovation, Walker et al. (2015) further highlight the challenge that political uncertainty can pose for innovation in public agencies. With reference to dynamism – defined as “the extent of unpredictability (uncertainty and change) in the task environment in relation to capacity and complexity” (Walker et al., 2015, p.666) – Walker et al. specifically

emphasise the potentially damaging impact of political uncertainty on the approach to innovation of public sector managers, and to a greater extent than either social or economic uncertainty. More specifically, they argue that “As government managers perceive their political environment getting more uncertain, they may adopt a defensive or reactive stance to protect their agency and to maintain relationships with their political environment” (Walker et al., 2015, p.679). To some extent, however, they argue that these challenges can be counter-balanced by the presence of a strong civic culture and high numbers of third-sector organisations in the local area (Walker et al., 2015, p.680). Trivellato et al. (2021) develop an alternative perspective, however, arguing instead that dynamic capabilities – defined by Teece et al. as the “ability to integrate, build and reconfigure internal and external competences to address rapidly changing environments” (Teece et al., 1997, p. 516) – play a vital role in supporting organisations adapt to a fluid and dynamic, if not even volatile, environment. (The role of capabilities in supporting public sector innovation is discussed in greater detail below.)

If not managed carefully, however, this dynamic context can also lead to greater uncertainty and complexity. Ewens and van der Voet (2019) analysed innovation in local governments in Germany to establish the extent to which organisational complexity impacts the adoption of participatory innovation methodologies. They found a positive relationship between the number of departments in a municipal body and the likelihood of participatory innovation approaches being adopted. Curiously, they also found that organisational size did not have a direct bearing on the adoption of participatory innovation practices, though this relationship was influenced by the degree of functional differentiation.

A link can arguably be made here to the responsiveness of managers to environmental and contextual factors. This is a point also highlighted by Korac et al (2017, p.580) who found that managers in local government are inherently open to influence from factors in the institutional and task environment and play, consequently, a coordinating role in the overall innovation process.

Organisational Ambidexterity

While the concept of ambidexterity – essentially the ability to both maintain and improve current operations while also pursuing and developing innovation opportunities – is relatively well known in the broader innovation literature (see, for example, O’Reilly and Tushman, 2004; Utterback, 1996), there was little discussion of this within the public service innovation literature reviewed.

In a 2016 paper, Gieske et al. (2016) developed a framework for assessing the innovative capacity of public sector bodies. In developing this framework, they focused particularly on three key aspects of organisational capacity for successful innovation: connective capacity, learning capacity and ambidextrous capacity. Citing Tushman and O’Reilly (1996), Gieske et al. emphasise that “Ambidextrous individuals, organizations or networks are able to pursue both incremental (exploitative) and discontinuous (explorative) innovation (Tushman and O’Reilly, 1996), of exploring new opportunities and at the same time enhance the efficiency of their current operations” (Gieske et al., 2016, p.9).

These arguments were developed further by Gieske et al. (2020) who evaluated ambidextrous practices in 8 Dutch regional water authorities (RWAs), looking at how they combined innovation and optimisation, and managed the tensions between those. Through a series of focus groups with each they recognised that the degree of ambidexterity demonstrated by each utility was the result of differences in culture, strategy and management, and that these factors were mutually reinforcing. A key finding of their research was that: “In low ambidextrous RWAs a legalistic task orientation goes along with a transactional management style and focus on optimization only. In high ambidextrous RWAs a societal value-orientation, integrative strategies, and a more transformational management style lead to more embedded innovation practices” (Gieske et al., 2020, p.341)

Networks

While networks are arguably elements of collaborative innovation, covered separately in this review, they also retain a specific place in the public sector innovation literature. Drawing on a resource-based view of organisations and integrating data from a survey of 656 public servants and politicians, Barrutia and Echebarria (2019) explored multilevel networks in municipalities in Spain. Specifically, they looked at collaborative networks including higher levels of government (upward collaboration), other municipalities (outward) and local stakeholders (inward). In doing so they sought to establish which forms of collaboration contributed most to innovation – in particularly exploitative innovation and explorative innovation, defined as follows:

Exploitative innovations are those that are close to the existing knowledge base and practices of the municipality, involving little discontinuity and controlled risk. They have usually been tested beforehand in comparable municipalities. By contrast, explorative innovations require significant departure from the existing knowledge base and practices of the municipality, involving more radical changes and high risk. They are usually unique, at least in certain aspects, and uncommon in comparable municipalities. (Barrutia and Echebarria, 2019, p.449).

The key finding from their analysis was that varying forms of collaboration networks impact differently on the two types of innovation considered. More specifically Barrutia and Echebarria (2019) found that while exploitative innovation is more often linked to upward collaboration, the unique and very particular requirements of explorative innovation mean that it typically builds upon outward collaboration with peers and inward collaboration with stakeholders. In short they argue that,

Within networks, exploitative innovation is easier and less-resource intensive for municipalities, which frees up resources that could be used for explorative innovation purposes. Thus, networks could provide municipalities with the opportunity to combine exploitation and exploration. (Barrutia and Echebarria, 2019, p.464)

Hartley (2021) examined a network of all English local authorities (over 300) over nine years, as those organizations undertook innovation and improvement. She

found that organizations learnt from each other through the horizontal sharing of innovative (promising practices). They learnt from the mistakes others made as well as the innovation successes. The research also found that all local authorities gradually improved their ability to learn from others over the period that the network existed, but that those which were already better at innovation gained more from the network than those which were less good – it showed the value of learning capacity as an element of innovation. Far from becoming more similar over time, the local authorities used their learning to undertake a variety of innovations to address particular service challenges and developments.

Hartley and Rashman (2018) studied the same network and found that over nearly a decade, the local authorities changed the way that they learnt from others in the network. Initially they undertook “duplicative imitation”, in other words, they tried to replicate the innovations they observed in others. However, as their learning and innovation capacity increased over time, they shifted to adapting existing innovations and then to their own creative innovation. Learning from and sharing with each other was central to these developments.

Finally, in terms of networks, Sørensen and Torfing (2017) focus on the question of “meta-governance” (that is to say, the governance of governance) including the metagovernance of networks. As with Barrutia and Echebarria (2019), Sørensen and Torfing (2017) link this directly to aspects of collaborative innovation, exploring the role that those in metagovernance roles can play. Specifically, they argue that:

An innovation-enhancing metagovernance strategy must explicitly seek to include actors with different backgrounds and perspectives who together possess the relevant innovation assets. It must also assist network actors in creative destruction by encouraging joint development and testing of new and bold solutions and supporting the diffusion of successful innovations to relevant audiences. In short, metagovernors of collaborative innovation in networks must *harness diversity, create appropriate disturbance, and recruit innovation ambassadors*.

(Sørensen and Torfing, 2017, p.837; original emphasis)

They go on to highlight, however, that greater clarity is needed on the tools which those in a metagovernance role can utilise, proposing it as an area requiring further research.

Trade Unions and Staff Associations

One aspect of the public sector environment and context largely ignored in the literature reviewed is that of trade unions and staff associations. This is surprising given that the public service is a sector where unions are typically more prevalent than in the private sector, and some are quite influential in employment relations. Based on a cross-sectional analysis of archival data, Morabito (2014) identified a positive relationship between unions and innovation, most particularly the implementation of innovation. While this ran counter to expectations, Morabito argues that rather being blockers to change and innovation, policing unions may well play a stabilising and centrist role in a dynamic and ever-changing environment, most particularly in terms of police and political leadership.

Concluding remarks

This section has examined elements of the organisational context in so far as it functions as both a driver and barrier to innovation, as well as aspects of organisational culture and climate for innovation.

Summary points

- *Public innovation relies on a range of antecedents, drivers and barriers*
- *Key drivers of public innovation include capacity, slack, internal and external pressures for change, and demographic changes. Data driven approaches have also emerged in recent as a key driver of public-sector innovation*
- *There are a significant number of barriers which can impact public sector innovation at multiple organisational levels and must be carefully managed.*
- *Contextual and environmental factors can have a significant impact on public innovation. Key amongst these is the creation of a supportive and inclusive culture/climate and effective networks to support innovation*
- *Public service organizations seeking to innovate must also develop a high degree of ambidexterity, delivering ongoing services while encouraging new ideas and thinking to emerge*

Group 3: Innovation in Action

As an organisational process inherently focused on developing and implementing novel solutions, innovation in action is a vital area of concern.

Key themes covered within the literature relate to collaborative innovation and related processes such as co-creation, open innovation and living labs, the diffusion and adoption of innovation, risk and failure, and others. Each of these is discussed in greater detail below.

Risk and Failure

Given the reputation that the public sector has for being risk averse, it is no surprise that a number of papers reviewed focus on the challenges posed by risk and failure.

Brown and Osborne (2013) seek to develop a conceptual perspective on how public sector organisations can more effectively engage with risk, most particularly in the context of innovation. Core to their argument is the assertion that “positive engagement with risk is an essential prerequisite of the effective management of risk in innovation in public services. It cannot be removed, but rather governed in practice” (Brown and Osborne, 2013, p.187). They conclude on this basis that, in terms of the public sector, “current theory (and practice) about risk and innovation in public services is not fit for purpose” (Brown and Osborne, 2013, p.187) and “that there is a need to move away from risk minimization and management and towards risk governance” (Brown and Osborne, 2013, p.188).

In a subsequent review of the literature on the nexus of public service innovation and risk, Flemig et al. (2016) come to similar conclusions, though arguably take a step further when they draw three key conclusions relevant to public sector organisations (PSOs) more broadly:

1. PSOs have to structure risk governance both to address known risks and to encourage organizational resilience to deal with uncertainty
2. PSOs need to understand risk management as a continuous process
3. PSOs need to adapt risk governance strategies to the organization’s structure

(Flemig et al., 2016, p.430-431)

A key potential approach to managing risk in the public sector context is highlighted by Hartley and Knell (2022), who address the question of how the risk of failure can be more effectively managed or mitigated by public organizations in order to support organisational learning and innovation. Integrating the concepts of intelligent failure – the considered and careful practice of ‘failures that are most effective at fostering learning’ (Sitkin, 1992, p. 243) – and exnovation – a term coined by Kimberley (1981) which refers to the deliberate cessation or pruning of innovations – they conclude that a better understanding of both will aid “the understanding and effective management of risk—itsself never an easy issue for public services—which can lead

to more well-planned public service innovation and outcomes” (Hartley and Knell, 2022, p.47). While, as Hartley and Knell (2022) assert, failure is typically anathema within a public sector context, Schultz Larsen’s (2015) conscious consideration of a failed policing innovation in Denmark is worth highlighting. In particular, Schultz Larsen focuses on “the successful failure of an innovation in the Danish Police. The case study focuses on the successful development and implementation and the failed diffusion of “TRYK Politi” (Dial Police), a pilot project launched in 2010” (Schultz Larsen, 2015, p.93). This paper is discussed in greater detail elsewhere in this review.

The challenge of implementing such approaches is, however, highlighted, by Osborne et al. (2020) based on conclusions from comparative case studies of innovation in Italy, The Netherlands, Slovakia and Scotland. In seeking to understand the range of approaches to risk, to stakeholder engagement related to that risk, and the various models and principles for risk governance, they assert that:

risk is currently poorly understood with public service organizations. Either it is presented as a professional issue or it is dealt with purely as an actuarial or health and safety issue. There is little understanding of risk as a core component of innovation. In response, this paper argues for a more nuanced risk governance approach that calls for transparent decision-making on risk in public service innovation in relation to its intended outcomes.

(Osborne et al., 2020, p.52)

A core conclusion reached by Osborne et al. (2020) is that that current policies and practices are:

piecemeal and lacking any pervasive understanding either of risk or of its relationship to PSI [public sector innovation]. Risk is viewed in a wholly negative fashion rather than as something to be engaged with as an inherent part of innovation. Such a failure to engage can only perpetuate a cycle of permanently failing innovation and an inability to learn for the future, as well as an enduring waste of public money down an innovation ‘drain’ (Kinder, 2012).

(Osborne et al., 2020, p.60)

In order to address these challenges Osborne et al. (2020) propose 6 key requirements within a public sector context. Specifically, they refer to the need for:

- A clearer understanding in the public sector of risk
- A culture that recognises risk as a key element of innovation
- A better understanding of the true costs of innovation, both financial and in terms of potential failure
- Better stakeholder engagement in terms of risk
- More effective governance practices to assess and manage risk
- The need for learning to be embedded in risk governance processes

(Osborne et al., 2020, pp.60-61)

Collaboration and Co-creation

The emergence of collaborative innovation and related processes has been a significant area of focus in the public sector innovation literature in recent years, most particularly the research emerging from Scandinavia and the Netherlands. In considering forms of governance, Hartley et al. (2013, p.828) highlight that “collaborative innovation aims to transcend the false choice between innovation being driven either by organizational entrepreneurs or by private service providers in artificially created quasi markets”. Moreover, Jacob Torfing (2019) – a key academic advocate of collaborative innovation in the public sector – asserts that collaborative innovation provides an alternative approach to innovation which is more suited for the public sector than alternative approaches.

More practically, Sørensen and Torfing (2017) outline the key interactions between collaboration and innovation in the following terms:

Collaboration stimulates innovation by harnessing rather than eliminating difference (Gray, 1989). Exchanges among actors with different experiences, perspectives, opinions, ideas, and resources tend to challenge conventional wisdom and inspire the creation of something new. Whether or not collaboration leads to innovation depends on (a) the actors’ perception of the urgency of the problem or challenge at hand; (b) how much they trust each other and how well they communicate and deal with emerging conflicts; (c) whether past experiences, existing interdependencies, and the incentive structure allow them to reach some sort of rough consensus or shared agreement; and (d) the extent to which there are institutional procedures for sharing the costs and risks associated with innovation (Brown & Osborne, 2013).

(Sørensen and Torfing, 2017, pp.828-829)

Concepts of collaborative innovation consequently integrate and have emerged from a range of perspectives including collaborative networks and processes, social innovation, co-creation and open innovation (Hartley et al., 2013). But who should this collaboration be with? Hartley et al. (2013, p.828) emphasise that “Collaborative innovation brings together a range of stakeholders from the public, for-profit, and nonprofit sectors, as well as users and citizens themselves, in interactive arenas that facilitate the cross-fertilization of ideas, mutual and transformative learning, and the development of joint ownership of new solutions”. In this regard, conceptions of collaborative innovation typically stand in direct contrast to the often-dominant focus on NPM as an overarching governance approach to innovation. Equally, this would suggest the importance of engaging more readily with external stakeholders including members of the public and industry experts in order to develop forms of open innovation. In particular, this may result in moving beyond a traditional customer/supplier relationship to develop more collaborative forms of innovation with industry experts and other stakeholders.

Skálén et al (2018) develop these perspectives further by integrating a service-oriented approach to innovation. More specifically, they further develop Osborne

and Strokosch’s (2013) concept of Public Service Logic which argues for a more consistent co-production of public services which places service users at the centre of service design and development, rather than policy makers or public servants. More than that, however, Skålén et al (2018) emphasise that the involvement of both service users and public sector employees in the innovation process can support the development of new ideas as “both frontline employees and users generate ideas for service innovation during direct interaction or co-creation, which, despite being contentious at some instances, have a positive impact on the PSI [public sector innovation] process. In addition, when users use services, the problems they encounter, but also their positive experiences, are likely to generate ideas for innovation” (Skålén, 2018, pp.711-712).

Similarly, based on a case study of the implementation of a Congestion Charge Zone in Milan, Trivellato et al. (2021) found that collaborative engagement by multiple stakeholders at multiple levels enhanced led to an enhance ability to understand the problems faced, develop solutions and engender ownership of the innovation process and outcomes. Key to this, Trivellato et al. (2021) found, was the importance to innovation of knowledge sharing and interorganisational learning, both strengthened and reinforced by collective capabilities, which they drew upon and integrated to develop a model of “continuous public innovation through collaboration” (Trivellato et al., 2021, p.67).

A question receiving only limited consideration from articles in the literature review is why should stakeholders – most particularly citizens – be motivated to engaged in collaborative innovation processes. Based on a survey of 358 local government officials and 128 citizens, Thapa et al. (2015) analyse motivations for participation in what they term *citizensourcing*. (Citizen sourcing is a form of open innovation based on the idea that various individuals, groups and organizations participate in trying to solve public problems and challenges through open participation.) Key amongst their findings is that citizens with relevant expertise are typically more motivated to collaborate, most particularly on complex social challenges which relate to their area of expertise. They additionally found that while financial incentives can be beneficial, they are not always necessary due to the variety of reasons for engagement. One area highlighted by Thapa et al. (2015) which requires further investigation are reasons for the engagement of senior citizens in innovation. This is an aspect they were unable to resolve through their research.

While there would appear to be clear benefits resulting from collaborative innovation, effective collaboration does not just happen of its own accord. Sørensen and Torfing (2011) argue that there is a direct link between collaboration and the co-creation of innovation ideas, in part, they argue, because collaboration has the potential to strengthen the various stages of the innovation process. Yet for collaborative innovation to emerge conditions must be created and drivers and barriers must be addressed. Sørensen and Torfing (2011) highlight these as follows:

Collaborative innovation processes	Drivers and barriers for Collaborative Innovation
<ul style="list-style-type: none"> • Empowered participation 	<ul style="list-style-type: none"> • Cultural
<ul style="list-style-type: none"> • Mutual and transformative learning 	<ul style="list-style-type: none"> • Institutional
<ul style="list-style-type: none"> • Joint ownership 	<ul style="list-style-type: none"> • Inter Organisational

	<ul style="list-style-type: none"> • Organisational
	<ul style="list-style-type: none"> • Identity related

(Adapted from Sørensen and Torfing, 2011, p.859)

Sørensen and Torfing (2011) further explain these drivers and barriers for collaborative innovation in the following terms:

Examples of potential drivers would be the construction of policy or service problems with a great sense of urgency, the presence of a strong interdependency between empowered and committed actors, agreement on the overall mission and a high level of mutual trust, and the likelihood of significant gains from public innovation. The potential barriers can be divided into the following: (a) cultural barriers—prevalence of a legalistic, zero-error culture and predominance of paternalistic professional norms; (b) institutional barriers—strong separation of politics and administration and use of inappropriate designs for dialogue with users; (c) interorganizational barriers—predominance of bureaucratic silos, boundary wars, and groupthink; (d) organizational barriers—lack of focus on innovation and absence of procedures for exploration and exploitation; and (e) identity-related barriers—the identities of key stakeholders prevent collaborative innovation. (Sørensen and Torfing, 2011, p.860)

The note of warning sounded by Hartley et al. (2013) is, in this regard, salutary. While highlighting the real benefits of collaborative innovation, they also emphasise that “collaborative innovation is no panacea, as a number of obstacles can impede the process of collaborative innovation at different stages” (Hartley et al., 2013, p.828). One approach to perhaps overcoming these barriers is suggested by Kinder et al. (2019) who draw on a social learning perspective to analyse how play-based approaches can support more collaborative approaches to innovation. Based on comparative case studies from a hospital in Finland and local government in Scotland they argue that “local public services are fertile ground for play-related innovation since diversified services intermix staff from a variety of backgrounds” (Kinder et al., 2019, p.377). Both novel and unusual, such integrative approaches may potentially help avoid some of the challenges posed by collaborative innovation.

Co-creation

An emerging aspect of collaborative innovation is co-creation. In a systematic review of the co-creation literature, Voorberg et al. (2015) establish clear links between the concepts of co-creation and co-production:

Co-creation refers to the active involvement of end-users in various stages of the production process (Prahalad and Ramaswamy 2000; Vargo and Lusch 2004). This is more specific than, for instance, the broad concept of participation, which could also refer to passive involvement. In the literature regarding active citizen involvement, the term co-production also occurs (Brandsen and Pestoff 2006; Verschuere, Brandsen, and Pestoff 2012). Since the concept co-creation and co-production seems to be related (Vargo and Lusch 2004) or maybe even interchangeable (Gebauer, Johnson, and Enquist

2010), adding the concept of co-production to our review can teach us important lessons about cocreation.

(Voorberg et al., 2015, p.1335)

In doing so, Voorberg et al. (2015) position co-creation very much within the broader framework of social innovation, a concept or practice which they define in the following terms:

we define social innovation as the creation of long-lasting outcomes that aim to address societal needs by fundamentally changing the relationships, positions and rules between the involved stakeholders, through an open process of participation, exchange and collaboration with relevant stakeholders, including end-users, thereby crossing organizational boundaries and jurisdictions

(Voorberg et al., 2015, p.1334)

Amongst the key findings of Voorberg et al's review was that over half of the studies examined did not give a specific explanation of the purpose behind a co-creation approach. Of those that did, the key objectives noted were increased effectiveness (18%), greater efficiency (11%), increased customer satisfaction (8%) and increased citizen involvement (7%) (Voorberg et al., 2015, p.1341). Against this backdrop it is curious that relatively few studies considered the actual outcomes of co-creation – only 43 studies out of 122 reviewed. Of those that did, 59% reported gains in effectiveness, 25% reported increased citizen involvement and 4% each reported efficiency gains and greater customer satisfaction (Voorberg et al., 2015, p.1345).

A particular approach to the integration of service user perspectives into the co-creation process is highlighted by Hennala and Melkas (2016), who focus on user-driven service innovation within a public sector context. In a case study within an elderly care setting in Finland, Hennala and Melkas (2016, p.62) focused on the impact of the collective voice of service users on service development. They found that those developing solutions for service users are better able to understand and address their needs by identifying and considering the various aspects of service users' collective voice. The five elements of user voice highlighted by Hennala and Melkas (2016) include:

- (1) The materiality element describes services, needs and actors at the concrete level
 - (2) The immateriality element delineates, at an abstract level, the kinds of 'quality components' that should be embodied in service innovation and guide it
 - (3) The interface element discloses certain processes that can be added to or strengthened to support the service's capacity to produce value for users
 - (4) The future element considers the viewpoints of future users of the service
 - (5) The upstream element helps in analysing differentiation between users
- (Hennala and Melkas, 2016, p. 67)

Rather than focusing on one area over another, however, Hennala and Melkas (2016, p.71) conclude that “attention to the identified elements seems to assure the quality of the collective voice; materials guiding user-driven innovation help to steer development in the right direction: away from only the most vocal users affecting the course of development. This creates the necessary preconditions for listening to multiple voices and variation.”

Living Labs and Innovation Labs as a special case of collaborative innovation

One particular structure that has emerged to support collaborative innovation, co-creation and open innovation is the Living Lab. While highlighting that there is no fixed definition of a “living lab”, Gascó (2017) outlines their practical meaning as follows:

living labs can be understood as settings or environments for open innovation, which offer a collaborative platform for research, development, and experimentation in real-life contexts, based on specific methodologies and tools, and implemented through specific innovation projects and community-building activities (Schaffers & Turkama, 2012). Living labs are driven by two main ideas: 1) involving users as co-creators of innovation outcomes on equal grounds with the rest of participants and 2) experimentation in real-world settings (Almirall, Lee, & Wareham, 2012). (Gascó, 2017, p.91).

This perspective is supported by Fuglsang et al. (2021) who, through a review of the literature on living labs, find that there are at least three forms of living labs in operation and that there is no standardised or agreed approach to their functioning. Rather, the functioning of living labs is characterised by a transdisciplinary approach.

In more specific terms, based on a qualitative study of two living labs in Spain, Gascó (2017) highlights three key findings relevant to their practical application, namely:

- 1) living labs provide the opportunity for public agencies to meet with private sector organizations and thus function as innovation intermediaries
- 2) implementing an open innovation perspective is considered more important than obtaining specific innovation results, and
- 3) scalability and sustainability are the main problems living labs encounter as open innovation intermediaries.

(Gascó, 2017, p.90)

Notably, Fuglsang et al. (2021) reach relevant conclusions regarding the importance and application of living labs in a real-world setting, highlighting their value in bringing together various actors in and approaches to public sector innovation:

Our analysis of the literature on living labs indicates that living labs contribute to broadening the space for innovation and experimentation, expanding on the

repertoire of methods used, and providing means to rethink and differentiate between various forms of outcomes of public sector innovation. Living labs seem to disrupt traditional forms of public innovation by giving vastly more attention to varied forms of co-creation of innovation, especially by the direct or indirect involvement of users and other stakeholders in experimental forms of innovation. Thus, these changes are significant, and living labs entail a deeper involvement of managers, employees and users with experimental innovation activities, i.e., an increased willingness to invest resources in innovation activities, as well as an ability to develop and distribute certain innovation tasks across actors and extracting value from them. Adding these activities to everyday practice may create a more challenging environment for public managers and employees with more tasks in a more experimental setting, although these living lab activities may also be constrained by extant institutional practices and values.

(Fuglsang et al., 2021, p.14)

While operating in a slightly different manner, innovation labs (i-labs) are a similar form of focused innovation space. Tõnurist et al. (2017) explore both the theory and practice of innovation labs, considering 11 examples of i-Labs from Europe, the USA, Australia and Asia. The key characteristics of i-Labs they highlight include:

- Created by government (local, state or national)
- Have an average team size about 6-7 people, which means that control is local and they can remain agile
- Bring together researchers, designers and stakeholders
- Enable cross-disciplinary and citizen-centred approaches
- Highly autonomous

(Tõnurist et al., 2017)

Tõnurist et al. (2017) emphasise that i-labs “tend to be small structures, specializing on quick experimentations that usually lack the capabilities and authority to significantly influence upscaling of the new solutions or processes” (Tõnurist et al. (2017, p.1473). Perhaps not surprisingly then:

Only a third of the i-labs in our sample engaged in implementing tasks. Thus, they primarily took up rapid prototyping and were less interested in long-term engagement, although scalability is one of the most stressed aspects in the new social innovation solutions (see Kieboom 2014). Thus, in this sense simple solutionism (rapid prototyping, quick and dirty approaches) takes hold, while complex system dynamics can be underestimated – this can hurt (social) innovation where in most cases long-term engagement is important to have a real impact (Mulgan 2009)”

(Tõnurist et al., 2017, p.1472)

In practical terms, Tõnurist et al. (2017) highlight that “i-labs are foremost created to foster ICT-enabled user-driven service production logic in the public sector as well as to cope with external changes (ICT change, austerity, demand for individualized services). It is assumed that i-labs represent islands of experimentation where the public sector can test and scale out public-service innovations” (Tõnurist et al., 2017,

p.1462). Along with Living Labs, i-Labs consequently form an important element of collaborative and open innovation.

Open Innovation in the public sector

First defined by Chesbrough (2006, p.1) as “the use of purposive inflows and outflows of knowledge to accelerate internal innovation, and expand the markets for external use of innovation, respectively”, open innovation typically takes one of three forms: outside-in, inside-out and coupled. Pedersen (2020) explains and contextualises these three approaches for public sector organisations as follows:

The **outside-in process** expands the organisation's knowledge base through the integration of external resources from other organisations and customers into innovative processes. In a public sector context, this can be exemplified by public sector organisations collaborating with citizens and companies in smart city projects or by involving citizens in policy development through crowdsourcing.

The **inside-out process** focuses on placing some of the organisation's assets outside its own walls to generate innovation in collaboration with other organisations. In a public sector context, this can be exemplified by open data projects publishing data to be used and exploited by citizens and companies.

The **coupled process** combines the outside-in and inside-out processes.

(Adapted from Pedersen, 2020, p.2; emphasis added)

Through a systematic review of the literature, Pedersen (2020) sought to understand how open innovation is applied within a public sector context and how, consequently, value is derived. Based on the literature considered, Pedersen (2020) concluded that:

- Open innovation is primarily used to support innovation in society, not to innovate in the public sector.
- Most open innovation projects focus on issues that are important to, but beyond the control, of public sector.
- Open innovation is generally not used to open up public sector or democratic processes.
- Most open innovation projects attempt to create value by changing citizen behaviour, experiences or capabilities.
- Current research is primarily focused on the open innovation process. Research into the value created by open innovation is needed.

(adapted from Pedersen, 2020)

In order to establish a more tangible perspective on the extent and impact of open innovation in public sector organisations, Lagunes Marin and Rubalcaba Bermejo (2015) examined data from European 2010 Innobarometer Survey on Public Innovation. This ultimately involved data from 4063 organisations across the then EU 27 countries plus Switzerland and Norway. A key finding from the organisations examined was that there was a “significant relation between the use of both internal

and external sources of information and the implementation of innovations by public organisations. External sources are shown to be more relevant for the implementation of services that are new to the public sector” (Lagunes Marin and Rubalcaba Bermejo, 2015, p.710). This latter finding should perhaps not be surprising given the potential that external perspectives can provide for innovation through an open innovation approach.

One example found in the literature is the use of an open innovation platform for addressing the challenges associated with developing solutions for rare diseases. Drawing upon Arnstein’s ladder of citizen participation as a guiding framework (Arnstein, 1969), Bullinger et al. (2012) found that the application of open innovation practices in a healthcare setting can not only lead to better outcomes, but can also support greater empathic engagement by stakeholders. While clearly desirable in a healthcare setting, this latter element is also beneficial for supporting greater understanding of and engagement with service user needs (as opposed to perceived needs).

A further example is offered by Yuan and Gascó-Hernandez (2021) who examine the ways in which civic hackathons can contribute to creation of public value through open innovation. They define civic hackathons as events which “involve the use of open government datasets to design innovative digital applications that address social challenges” (Yuan and Gascó-Hernandez, 2021, p.525). By examining 19 civic hackathons across the United States, Yuan and Gascó-Hernandez (2021) noted three key outcomes of civic hackathons, namely:

(1) developing digital prototypes, (2) public engagement and relationship building, and (3) government awareness of open innovation and open data. Public engagement and relationship building were the most mentioned outcomes. Our findings further suggest that civic hackathons make contributions to public value creation in terms of substantive outcomes, democratic accountability, and procedural legitimacy.

(Yuan and Gascó-Hernandez, 2021, p.536)

Focusing more specifically on value, they further find that:

the value of civic hackathons lies in the process of engaging external actors to initiate innovation processes rather than in the accomplishment of final innovation results. The process of prototyping innovations with external actors itself generates important outcomes (i.e. relationship building and government awareness raising in our samples). Innovation, therefore, is an ‘excuse’ to spark a process of empowering people and mobilizing them to realize that they can contribute to public innovation and that they can have an idea to solve a public issue that may affect them as well.

(Yuan and Gascó-Hernandez, 2021, p.536)

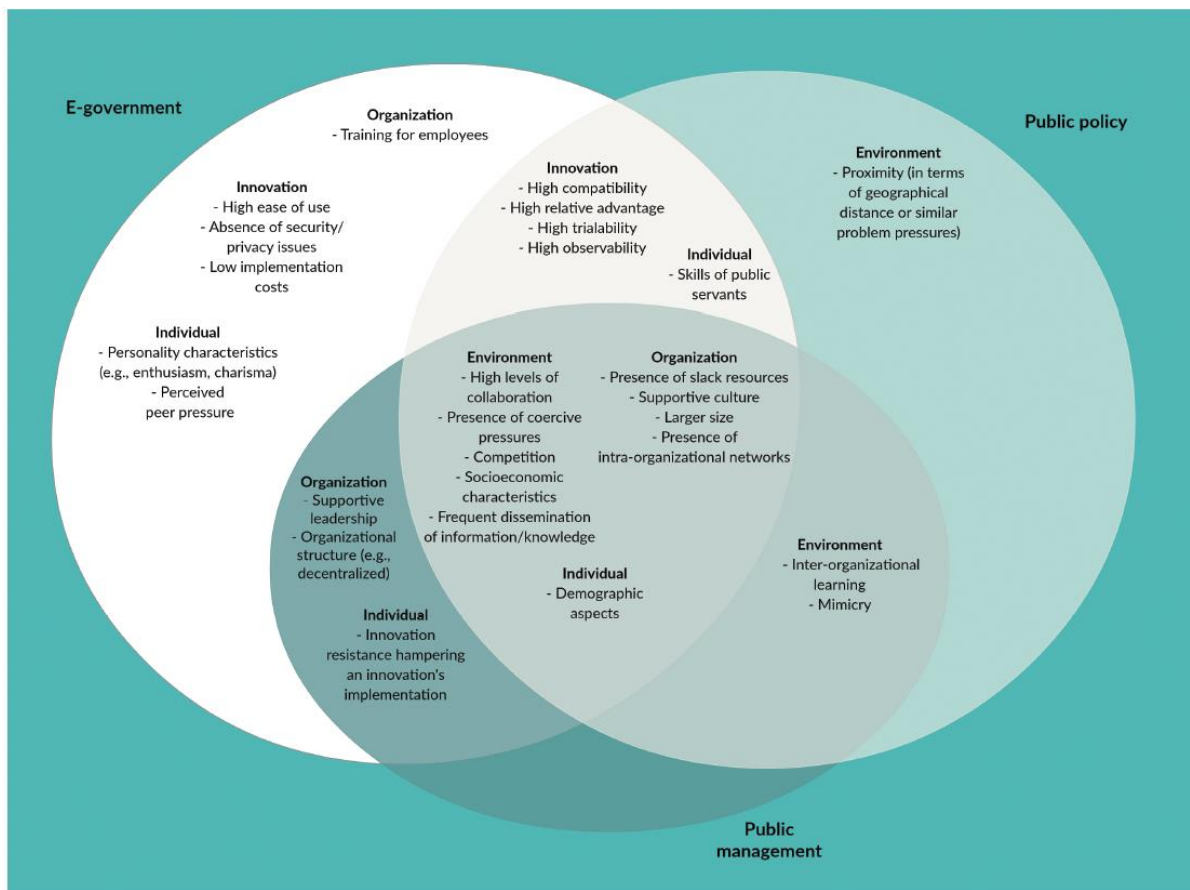
Drawing together the various strands of discussion on open innovation, it would seem that open innovation has the potential to add significant value to public sector innovation. Consideration should consequently be given to further leveraging its

potential. However, papers have not commented on whether citizens are willing or unwilling beneficiaries of public services. It could be that adapting some of these methods will be needed for services like policing, or aspects of social work or environmental health, for example, where there are people who receive services under obligation (Alford 2002) and who may not therefore appreciate they public service they are receiving (e.g. offenders against regulations and laws).

Diffusion and Adoption of Innovation

Although conceptually similar in many regards, diffusion and adoption are defined distinctly in the literature. Whereas diffusion can be understood as “the process in which an innovation is communicated through certain channels over time among the members of a social system” (Rogers, 2003, p.5), adoption can be viewed as “the process through which an individual (or other decision-making unit) passes from first knowledge of an innovation, to the formation of an attitude toward the innovation, to a decision to adopt or reject, to implementation and use of the new idea, and to confirmation of this decision” (Rogers 2003, p.20).

In a synthesis of the literature on the diffusion and adoption of innovations in a public sector context, De Vries et al. (2018) found a very diverse theoretical landscape across e-government, public policy and public management. While they found, for example, that scholars generally agree on the importance of involving both internal and external stakeholders in order to drive the adoption or diffusion of innovation within the public sector (De Vries et al., 2018, p.173), there is often very little agreement beyond that. They summarise the key drivers of diffusion and adoption of public sector innovation at four levels – environmental, organisational, innovation and individual – as follows:



(De Vries et al, 2018, p.168)

In considering the diffusion of innovation Walker et al. (2011) also consider theoretical perspectives. Unlike De Vries et al. (2018) who sought to synthesise the literature, Walker et al. (2011) set out to test a key model for the diffusion of policy innovations as proposed by Berry and Berry (1999, 2007). The Berry and Berry model proposes that “diffusion of policy innovations is driven by learning, competition, public pressure or mandates from higher levels of authority” (Walker et al., 2011, p.95). Based on an examination of innovation diffusion in English local authorities, Walker et al. (2011) conclude that while the Berry and Berry model can largely explain the diffusion of policy innovations, it is more appropriate for overall innovation within a public sector organisation, and not so suited for understanding the diffusion of different types of innovation.

Empirical research into the diffusion and adoption of innovations in a public sector context has also been considered by a number of scholars. Bhatti et al (2011) examined the role of public sector administrative professionals in driving the adoption and diffusion of innovation within a local government context. Based on an analysis of the spread of “citizen service centres” (CSCs, essentially one-stop shops for public information) in Denmark between 1987 and 2005, Bhatti et al. (2011) found that the more professional the administration of an organisation was, the more likely they were to adopt the innovation. Equally, they found that “need based demands,

wealth and the regional supply of CSC increase the likelihood of its adoption” (Bhatti et al, 2011, p.95). The regional supply noted by Bhatti et al. (2011) refers to a pattern of emulation between neighbouring local governments, leading to what could be termed a concentration effect.

Zhang and Zhu (2020) also analysed the development of citizen information centres as a way of understanding the innovation diffusion process in China. Instead of looking at the role of administrative professionals as considered by Bhatti et al (2011), Zhang and Zhu (2020) focused more on the impact of top-down supports on the diffusion of innovation in Chinese local government organisations. Unlike Andersen and Jakobsen (2018), discussed earlier, who focused on top-down pressures from leaders and managers within an organisation, Zhang and Zhu (2020) considered top-down to be pressures from higher levels of government (central, provincial) on local government to implement innovations. Key amongst Zhang and Zhu’s (2020, p.209) findings is that top-down pressures for diffusion can substitute for other pressures and, in so doing, implicitly impact on the innovation itself as well as the organisational and environmental conditions for innovation adoption. They also highlight what might be termed a *crowding out effect* where responses to one type of external pressure to innovate might depend on the strength of other pressures to innovation. More specifically, they assert that: “top-down interventions tend to decrease local autonomy and environmental uncertainty. Thus, local governments have fewer resources and motivations to respond to horizontal pressures when top-down supports increase than when they decrease” (Zhang and Zhu, 2020, p.217).

While Bhatti et al. (2011) and Zhang and Zhu (2020) looked at the diffusion of innovation in terms of physical centres, Homburg et al. (2014) considered the diffusion of digital services amongst municipalities in The Netherlands. Core amongst their findings is that adoption and diffusion is driven by “(1) horizontal and vertical channels of persuasion and (2) human agency, rather than technological opportunity and rational cost-benefit considerations, account for actual diffusion of innovations” (Homburg et al., 2014, p.429). The channels of persuasion referred to are defined as “vertical (stemming from beyond the set of potential adopters) and horizontal (related to reputation and rivalry considerations that stem from within the set of potential adopters)” (Homburg et al., 2014, p.445).

Unlike other studies which have tended to look more at the drivers of diffusion or adoption, Maranto and Wolf (2013) look instead at the barriers to diffusion in a public setting. By comparing two distinct cases – the New York Police Department’s implementation of CompStat under Commissioner Bill Bratton, and attempted innovations in the Washington DC school district – they find that the “inflexibility of personnel systems and political costs of disruptive reforms combine with the professional norms and progressive ambition of agency leaders to limit the diffusion of innovations in law enforcement and schooling” (Maranto and Wolf, 2013, p.230). While leadership and leader approaches were a key aspect of the process, Maranto and Wolf (2013) further argue that the movement between organisations of middle managers can also help to spread innovative practices.

An alternative perspective on the adoption of innovations is proposed by Moldogaziev and Resh (2016) who take a systems perspective in analysing key influences on innovation. More specifically, their analysis of a survey of 1892 Australian public servants finds:

empirical evidence that innovation sources are perceived to be varyingly associated with subsequent implementation success. In addition, we find that implementation success varies by the loci of results and processes of innovations vis-à-vis the technical core. In other words, it appears that perceived success in innovation implementation is a function of the interplay between the source of the innovation and the final result or process, all of which is oriented toward different dimensions of the organization's environment and its stakeholders.

(Moldogaziev and Resh, 2016, p.689)

Based on this analysis they further found that the perceived success of innovations is “predominantly dependent on bottom-up organizational sources of innovations” (Moldogaziev and Resh, 2016, p.689), whereas innovations driven by senior management were typically not perceived so positively.

Kiefer et al. (2015) similarly explore perceptions of innovation – or more specifically, the impact of announced budget reductions on behaviours when those announcements were followed by either cutback-related or innovation-related changes within the public sector. Given the longitudinal field study nature of the research, findings were both complex and multi-faceted. Specifically:

Results suggest that the budget announcement itself—before any changes had been implemented— negatively affected individual well-being and attitudes at work. Further, we found differential effects on employees, depending on whether the budget reductions were followed by cutback-related or innovation-related changes. Increases in cutback-related changes had negative effects on employees, yet an increase in innovation-related changes did not just have less negative but positive effects on employees' positive well-being, job satisfaction, and engagement over time. However, contrary to previous research, some employee outcomes were not affected by either of the changes in this longitudinal study.

(Kiefer et al., 2015, p.1279)

In other words, while the announcement itself may have been perceived to be negative overall, the perceived impact of changes that the researchers classified as innovation-related changes was largely positive and had a positive impact on employee wellbeing.

Concluding Remarks

Innovation in Action involves processes and factors which support or hinder practical innovation. This section has drawn together the literature on key areas of relevance,

finding significant evidence for a renewed focus on those key elements which facilitate greater innovation in all public sector contexts.

Summary points

- *Collaboration with external stakeholders can be a key facilitator of public innovation*
- *Key forms of collaboration include co-creation and open innovation, most particularly involving close engagement with stakeholders and leading experts. In a public context, open source may be reframed as citizen-sourcing to recognise different opportunities and constraints*
- *New structures such as innovation labs, living labs and i-Labs can be beneficial and provide structure for collaborative innovation processes*
- *Risk must also be managed effectively and specific processes may be required to support this*
- *The diffusion and adoption of innovation in a public context can be driven by both public demand as well as internal pressures. Learning from and either emulating or adapting existing practice is also a key facilitator of the diffusion and adoption of public innovation.*

Group 4: Supports for Innovation

Group 4 within the EI/IDA framework underpinning this research focuses on supports for innovation.

Within the literature reviewed, key aspects of supports for innovation highlighted include organisational capabilities and capacity, types of innovation, bricolage, learning and values. Each of these areas is discussed in greater detail below.

Capabilities

While the concept of organisational capabilities is hinted at in various aspects of the public sector innovation literature, a number of papers focus in particular on capabilities.

In developing a conceptual model of the enabling role played by push and pull factors of innovation, Clausen et al. (2020) specifically examine the broader interplay between push innovation, pull innovation and organisational capabilities, arguing that “in order for public sector organizations to take advantage of push and pull sources of innovation, they need to have the innovation capabilities to enable this process” (Clausen et al., 2020, p.170). These innovation capabilities are defined by Clausen et al. (2020, p.163) as “the ability of public sector managers and other key stakeholders within the organizations to make ongoing adjustments in resource allocation and build new thinking”.

Importantly, not only do their findings emphasise the importance of capabilities as an enabler of innovation within the public sector, but just as importantly that:

Innovation capability is an important push factor in itself as well as an enabler of other push and pull sources of innovation. The results show that innovation capability has a direct and positive relationship with intensity of innovation... as well as an indirect and positive effect through the use of external knowledge (push)... and identified demand (pull)...

Meanwhile, the use of external knowledge... and identified demand... is also positively associated with intensity of innovation.

(Clausen et al., 2020, p.170).

Similar to Clausen et al. (2020), Gullmark (2021) considered how capabilities can drive public sector innovation, but also how these capabilities can be developed. Drawing on a case study of four different Norwegian local authorities over four years Gullmark (2021) highlighted the often bifurcated approach to innovation capability in the public sector:

Public sector organizations develop two forms of innovation capability in a path-dependent manner: low-routinized innovation capability and highly routinized innovation capability. In the former, dynamic managerial capabilities in the form of individuals’ entrepreneurial and leadership skills comprise the source of innovation capability. In the latter, innovation capability emerges from dynamic organizational capabilities, that is, a set of innovation-

stimulating routines, processes, tools, and structures. Notably.....regardless of the form of innovation capability, both spur the continuous development and implementation of various radical and incremental public sector innovations.

(Gullmark, 2021, p.509)

Given this, the importance of capabilities should not be understated. Importantly, Trivellato et al. (2021), whose perspectives on innovation more broadly, have already been highlighted, emphasise the organisational capabilities play a vital role sustaining continuous public sector innovation.

Innovation Type

As with the broader innovation literature, considerations of innovation type are found with the public sector innovation literature.

De Vries et al. (2016) highlight 5 key types of innovation relevant to public sector organisations as distinct from commercial organisations: process innovation, product or service innovation, governance innovation, conceptual innovation and “other”. They further map these against reported outcomes (including no outcome), demonstrating that each type of innovation is typically linked to certain organisational outcomes.

Innovation type	Effectiveness	Efficiency	Involving citizens	Involving private partners	Customer satisfaction	Other	No outcome	Total
Process innovation	33%	12%	4%	6%	3%	6%	36%	100%
Product or service innovation	26%	8%	4%	8%	4%	9%	41%	100%
Governance innovation	17%	7%	15%	17%	4%	17%	23%	100%
Conceptual innovation	14%	0%	14%	14%	14%	14%	30%	100%
Other	21%	15%	0%	0%	0%	3%	61%	100%

(Source: de Vries et al., 2016, p.161)

An alternative typology is offered by Chen et al. (2020) who seek to develop an approach distinct from more private sector orientations. Chen et al.’s (2020) typology is based on three aspects of innovation focus relating to value creation, and the locus of innovation – either internal to the organisation, or external to the organisation. They conclude that “By classifying PSIs via the three innovation foci (strategy, capacity and operations) and two innovation loci (internal vs external), develops a new typology of six types of innovation: mission, policy, management, partner, service, and citizen” (Chen et al., 2020, p.1675). As Chen et al.’s (2020) paper is largely theoretical in nature the typology is not tested, though the authors do provide some useful examples of how this might apply in practice. One example given example - relevant for this context – links together both the operations focus and the external locus highlighting how this typology might work in practice:

when a local police force designs and regulates a neighbourhood watch program, they are providing a platform that both fosters transparency and increases their capital value by leveraging the abilities of residents. Innovation in operations focus is the creative solution to organizations' operations problems.

(Chen et al., 2020, p.1682)

Bugge and Bloch (2016) similarly develop a typology of public sector innovation and in so doing seek to bridge the gap between public policy, innovation studies and measurement. By drawing upon data of actual innovations in Scandinavia and the UK included in MEPIN and NESTA data, Bugge and Bloch (2016) outline 8 key types:

- Product innovation
- Process innovation
- Organizational innovation
- Communication innovation
- Multiple type innovation
- Not an innovation
- Bricolage
- Systemic

Ultimately, while there are multiple potential typologies of public sector innovations the links and cross-overs between them are evident. The key to their effectiveness or relevance is the extent to which they appropriately reflect actual innovation occurring within the public sector and are not simply derivatives of private sector frameworks, inherently focused more on profit than on measures more relevant to the public sector. Some research (prior to the review) suggests thinking about innovation in terms of dimensions rather than types because any particular innovation may have several features (e.g. an innovative product which changes the type of service offered or which leads to organizational innovation).

Bricolage

In their typology, Bugge and Bloch (2016) specifically highlight bricolage as one type of public sector innovation. Fuglsang and Sørensen (2011) define bricolage as “a ‘do-it-yourself’ problem-solving activity that creates structures from resources at hand” (Fuglsang and Sørensen, 2011, p.583). Bugge and Bloch (2016) – drawing on Fuglsang (2010) – provide a slightly different definition, asserting that “the notion of bricolage refers to small, bottom-up and incremental changes often initiated by frontline employees in public service provision (Bugge and Bloch, 2016, p.282). A key distinction between these two definitions is Bugge and Bloch’s (2016) explicit link between bricolage and public sector innovation, though it should be emphasised that the practice of bricolage is by no means limited solely to the public sector.

In examining bricolage in the context of the provision of home help for the elderly in Denmark, Fuglsang and Sørensen (2011) assert that the experience of bricolage highlights weaknesses in traditional definitions of innovation which tend to focus on more formal and formalised elements. As a consequence, more informal approaches such as bricolage are marginalised or ignored. The challenges stemming from this are, in part, highlighted by Bugge and Bloch (2016) who assert that existing conceptions and measurement frameworks of innovation fail to fully capture the value of bricolage in practice.

Perhaps of greatest importance, however, is the recognition of bricolage as an informal form of innovation practice. While formal approaches and structures have a vital role to play in innovation, so too do the ad hoc and do-it-yourself approaches emphasised by both Fuglsang and Sørensen (2011) and Bugge and Bloch (2016).

Learning

The role of learning as an aspect of public sector innovation is discussed in a number of papers.

Papers already highlighted in this review by Gieske et al. (2016), Hartley and Knell (2022) and Hartley and Rashman (2018) focus on various elements of learning. Gieske et al. (2016) discuss learning capacity as a key aspect of innovative capacity within public sector organisations. In contrast, Hartley and Knell (2022) consider approaches to better managing and mitigating risk and failure in order to better support both learning and innovation. As already noted, Hartley and Knell (2022) further develop Sitkin's (1992) concept of Intelligent Failure which relates to those failures which are based on thoughtful experimentation and that support learning.

In addition to these two papers, Salge and Vera (2012) examine learning within the context of activities which generate innovation. More specifically, they examine "whether the payoff from engaging in innovation-generating activities is contingent on an organizations level of customer and learning orientation" (Salge and Vera, 2012, p.550). By drawing on novel panel data from non-specialist hospitals in England, Salge and Vera (2012) "find strong support for a direct relationship between innovative activity and public service quality and for a moderating role of both customer and learning orientation" (Salge and Vera, 2012, p.550). Moderating in this regard relates to the role that either customer or learning orientation play in strengthening the relationship between innovative activity and public service quality. The key conclusion reached, therefore, is that a learning orientation positively strengthens the impact of innovation activity on the quality of public services.

Values

A final element to be considered within the broader *Supports for Action* category relates to values. Meijer and De Jong (2020) consider the way in which value conflicts impact the dynamics of the innovation process. Drawing upon two distinct

case studies from The Netherlands – one looking at the introduction of electronic identity card, the other looking at the design of a national youth risk index – Meijer and De Jong (2020) consider competing values and the strategies for managing value conflicts. Key amongst their arguments is the assertion that “managing public value conflicts is crucial for improving the quality of innovations, enhancing their legitimacy, and driving the implementation process forward” (Meijer and De Jong, 2020, p.986). The key differences between these strategies are summarised by three distinct personas: ostrich (avoidance strategy), chameleon (coping strategy), and dolphin (learning strategy). Importantly, they stress that different strategies can play a role at different times in the innovation process and that their application should be sequenced carefully.

Concluding remarks

Supports for innovation are an essential element of an public sector innovation ecosystem. By drawing out the key elements this section has highlighted the role that these supports play and areas where they might be developed further.

The EI framework includes intellectual property but the literature review found no papers addressing that aspect of innovation. It is not relevant to all parts of the public sector in any case, but can be relevant to some parts of the military, healthcare and policing. We note this gap. Earlier work by Mazzucato (2013) maybe relevant for the interested reader but it is outside the scope of this review.

Summary points

- *Effective public innovation requires a range of supports*
- *Key amongst these are supports for capability enhancement and learning*
- *Frameworks for public sector values can also play a key role in supporting innovation-linked behaviours*
- *These capabilities and behaviours impact and in turn are impacted by the types of innovation which emerge in a public sector context*

Group 5: Evaluation and Improvement

Based on the number of papers found through our search, the smallest category within the literature was *Evaluation and Improvement*. These primarily linked to approaches and methodologies for measuring innovation. The starting for many of these approaches is the assertion that current measurement methodologies are insufficient, a problem which stems, Arundel and Huber (2013, pp.146-147) assert, from the lack of agreement on the definition of public sector innovation. More than this, however, challenges with the measurement of innovation in the public sector are impeded by the sheer diversity of forms and types of public sector innovation. As Bugge and Bloch (2016) argue: “measurement frameworks should better reflect the heterogeneity of learning and innovation in the public sector” (Bugge and Bloch, 2016 p.281). While this might seem like a theoretical rather than practical consideration, the real-world implications are significant. Drawing on interview and survey data from the Australian Public Service, Arundel and Huber (2013), highlight measurement challenges linked to a failure to fully understand the nature of innovation. For example, they indicate that some participants in their research were not entirely clear on the difference between a change and an innovation. Equally, they noted potential over-reporting of innovation by public sector managers compared to private sector managers – though as they highlight this could also be due to under-reporting by private sector managers!

There is also the issue of the complexity of public service goals (Christensen et al, 2020; Bason, 2018) which are expected to address both means and ends, are multiple, and sometimes conflicting, and where preventative work is harder to measure. Public value analysis is one way to try to address this (Benington and Moore, 2011) and this has been applied, conceptually to innovation (Hartley, 2015; Bason, 2018; Moore, 2013).

Another approach to at least partially address these challenges is offered by Kattel et al. (2018) attempt to map and subsequently analyse a range of indicators for innovation performance, based on an assessment of existing frameworks. They argue for the need to go beyond efficiency measures to include other variables such as legitimacy, cooperation with business and third sectors.

They ultimately assert that “instead of trying to come up with quantified indicators, public sector innovations should be assessed in complex evaluation frameworks.” (Kattel et al., 2018, p.77)

A separate approach is proposed by Arundel et al. (2019) who develop a framework for measuring public sector innovation through an assessment of various representative surveys, commonly in use since the early 2000s, mainly in Europe and Australia. The majority of these surveys are built upon the evaluation framework offered by the OECD’s Oslo Manual on innovation, which Arundel et al. (2019) argue is insufficient to support both policy learning and public sector innovation.

As an alternative, Arundel et al. (2019) propose a measurement framework which covers:

- governance
- bottom-up, top down and strategic innovation
- source of the ideas for the innovation
- innovation culture
- capabilities and tools
- objectives and outcomes
- drivers and obstacles

In drawing these perspectives together, Arundel et al. (2019) conclude that: “The framework proposed in this paper, such as the use of a general definition of innovation that is compatible with the Oslo Manual definitions, would permit benchmarking innovation activities between the public and business sectors. However, policy interest in public sector innovation extends to topics that are not covered in the Oslo Manual, including the governance and strategic management of innovation and the nuts and bolts of how public sector organizations innovate” (Arundel et al., 2019, p.796).

Concluding Remarks

While limited in scope, the literature on measurement of public sector innovation nonetheless provides relevant insights. By seeking to incorporate a range of more context-relevant measures, these approaches are attempting to overcome the historic reliance on measures derived from private-sector contexts.

Summary points

- *The measurement and evaluation of public innovation is key to monitoring progress*
- *While there are a range of approaches there is no single, definitive framework to draw upon and implement*
- *Key aspects measure include both inputs to and outputs of innovation, as well as structures and processes supporting public sector innovation*
- *Given the complexity of the goals of public organizations, a public value approach to assessing success is a fruitful approach to evaluation.*

Conclusions

This report has examined a wide range of academic (and a small number of policy) papers about public services innovation. It noted that in 2008 the subject of public innovation was little studied but that by 2016 there was a solid literature, focusing on the distinctive features of public innovation and so the field was less reliant on private sector studies. The private sector literature has been noted to be very valuable to an extent but it can be misleading at times because it does not comment on the political and governance context, or recognise the role which citizens and other stakeholders can and do play in public innovation. The external environment is more important for public organizations than for private firms.

Given the growth of the field, it was timely to undertake a systematic literature review to identify, collate and draw out themes about public innovation. Following a well-respected methodology the review identified 86 academic publications for detailed analysis.

The purpose of the review was to survey the work about public innovation but then consider its relevance specifically for policing. It aimed to contribute to providing a strong evidence base for policing in order to strengthen and support individual and organizational capacity-building in UK policing, so as to ensure that strategic initiatives about police innovation are grounded in the best available evidence. The literature review ensured that the evidence was up to date and rigorous (based on strong theory development and/or well-designed and implemented research – so the literature review avoided opinion pieces which were not grounded in evidence).

It is to be hoped that the evidence provided in this report can be used to underpin initiatives, toolkits and more to help police innovation champions and promoters, innovation managers, and strategic leaders as they support or shape the myriad innovation ideas which can bubble up within organizations if the structures and cultures are encouraging and the capability is present.

The review focused on two roles which public organizations can perform in innovation – creating and sustaining innovations themselves and working with partnership with stakeholders to create innovations. The focus of the review is on organizational features which support these activities.

Although 86 papers were of a quality standard to be included in the review, hardly any reviewed innovations in policing. This is a notable feature of this review, prompting important questions for those in policing to reflect on. Is it that innovation does not occur in policing, unlike other public services? This seems highly unlikely given that the review identifies organizational features which are present as much in policing as in other services and given that workforce-initiated creativity is widely present in organizations. Or is it that innovations in policing do not progress beyond the ideas stage, due to the highly regulated system in which police work (with approved professional practice inhibiting experimentation and innovation, for example)? Or does working in the media spotlight, with the risk of blame, inhibit experimentation? (Though the health service is similarly a source of media interest yet has undertaken many studies of innovation.) Or is it that policing innovations are

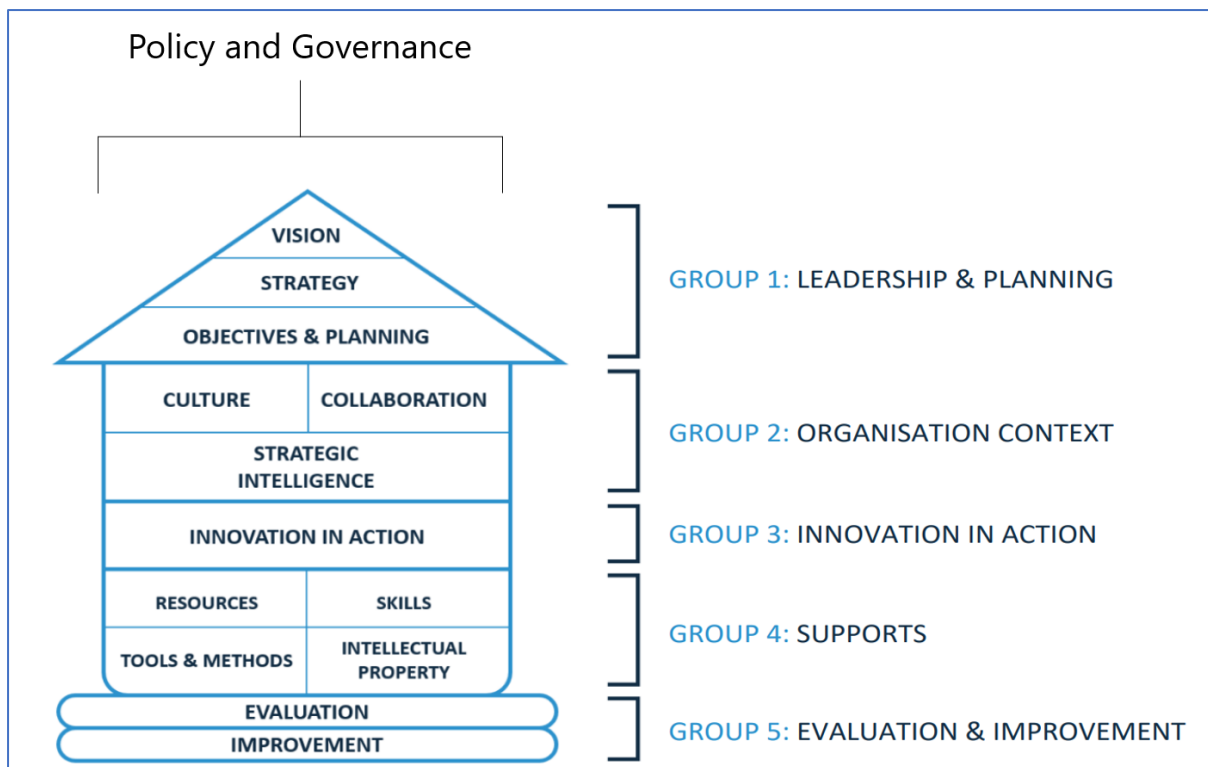
little noticed and remarked on, let alone evaluated within the service? In which case, will a more evidence-informed approach to policing in the future improve the reporting and evaluation of policing innovations? Or is it that policing has not yet established the quality and range of longer-term relationships and partnerships with academics, which exist in other public services, whereby academics can contribute to building up the evidence base to inform policing policy and practice in forces and across the whole service?

It may be that a range of explanations is possible, and this is worth further reflection within policing. Not only on how can the range, quality and sustainability of innovations happen but also how can they be mapped and learnt from, to inform other innovation initiative, to make the innovation journey more feasible for later innovators and champions and to avoid reinventing the wheel?

In the meantime, there is considerable learning which can be taken from wider public services, as this report demonstrates. Learning from other's innovations, the report shows is generally about adaptation not replication. Each organization is embedded in a different context to a greater or lesser extent so what works for local government may or may not work for policing. Or it may work in a large urban force but not a small rural one. Much of the emphasis in innovation studies is on adaptation to local context and part of organizational capability is about learning to innovate (in a new context) rather than learning to imitate.

Organizations can improve their capability to learn and benefit from the innovations of others, as shown in this report. The innovation capabilities of an organization are found to include "the ability to understand and respond to changing conditions of its context, to pursue new opportunities and to leverage the knowledge and creativity of people within the organization in collaboration with external interested parties." (ISO 2020, p.V)

This report draws on the Enterprise Ireland framework to identify the key barriers and enablers of public innovation and therefore where the key leverage points may be for those interested in creating, supporting or sustaining innovation. The report presents that framework again here. This is the modified version (modified by the authors) to reflect the policy and governance context which is so prominent for public organizations.



Each “segment” of this framework has potential learning and action points for innovation brokers, champions and managers. At the end of each section of this report we have summarised the key findings and these are now placed together for this conclusion section.

Leadership and planning:

- *While leadership is context specific, transactional approaches appear to be least effective for initiating innovation*
- *Public service leaders play a key role in championing and promoting innovation, and should seek to empower their teams to innovate*
- *Ethical approaches to leadership are vital for public innovation and can guide practices and approaches*
- *Governance frameworks within public sector contexts can significantly impact innovation and should be managed carefully*
- *As with private sector contexts, an innovation strategy is valuable to drive effective public innovation*

Organizational context and processes:

- *Public innovation relies on a range of antecedents, drivers and barriers*
- *Key drivers of public innovation include capacity, slack, internal and external pressures for change, and demographic changes. Data driven approaches have also emerged in recent as a key driver of public-sector innovation*
- *There are a significant number of barriers which can impact public sector innovation at multiple organisational levels and must be carefully managed.*

- *Contextual and environmental factors can have a significant impact on public innovation. Key amongst these is the creation of a supportive and inclusive culture/climate and effective networks to support innovation*
- *Public service organizations seeking to innovate must also develop a high degree of ambidexterity, delivering ongoing services while encouraging new ideas and thinking to emerge*

Innovation in action:

- *Collaboration with external stakeholders can be a key facilitator of public innovation*
- *Key forms of collaboration include co-creation and open innovation, most particularly involving close engagement with stakeholders and leading experts. In a public context, open source may be reframed as citizen-sourcing to recognise different opportunities and constraints*
- *New structures such as innovation labs, living labs and i-Labs can be beneficial and provide structure for collaborative innovation processes*
- *Risk must also be managed effectively and specific processes may be required to support this*
- *The diffusion and adoption of innovation in a public context can be driven by both public demand as well as internal pressures. Learning from and either emulating or adapting existing practice is also a key facilitator of the diffusion and adoption of public innovation.*

Innovation supports:

- *Effective public innovation requires a range of supports*
- *Key amongst these are supports for capability enhancement and learning*
- *Frameworks for public sector values can also play a key role in supporting innovation-linked behaviours*
- *These capabilities and behaviours impact and in turn are impacted by the types of innovation which emerge in a public sector context*

Evaluation and improvement

- *The measurement and evaluation of public innovation is key to monitoring progress*
- *While there are a range of approaches there is no single, definitive framework to draw upon and implement*
- *Key aspects measure include both inputs to and outputs of innovation, as well as structures and processes supporting public sector innovation*
- *Given the complexity of the goals of public organizations, a public value approach to assessing success is a fruitful approach to evaluation.*

This report provides a rigorous view of the recent literature on innovation and joins earlier reviews which reinforce this picture of the value and importance of a range of barriers and enablers to innovation. Consequently, a strong evidence base is building about both the distinctiveness of public innovations (compared with private firms, where there are many similarities but also important differences, particularly related to the policy, governance and public value contexts).

However, while there are themes and patterns, there is no single blueprint for innovation. It is not a tick-box set of actions to achieve success, but rather many

characterise the process as an “innovation journey”, with ups and downs, steps forward and steps backward. The barriers and enablers of innovation provide themes and ideas for the innovator (or innovation team) but how they are enacted in a particular context and organizational culture is likely to vary. The report provides signposts for ideas but is not a recipe card. Toolkits can alert innovators to what to take into account as they work with others to achieve innovations which create public value for society.

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