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In search of innovation capability and its sources in local government organizations: a critical interpretative synthesis of the literature

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ABSTRACT

Empirical research has identified a long list of antecedents that promote innovation in local government organizations. However, less is known about how and why diverse antecedents—as well as their interplay—stimulate local government organizations to innovate and create public value. We address this gap through a systematic and critical interpretive synthesis of the empirical literature on innovation and entrepreneurship in local government organizations. Our review advances theory development about public sector innovation processes by (1) showing *how* antecedents relate to each other across levels of analysis in a process model and (2) explicating *why* local government organizations generate/adopt innovation through innovation capability. Our emerging theory offers several contributions to the public sector innovation literature and a forward-looking research agenda.



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Introduction

Many local government organizations pursue innovation (Arundel, Bloch, and Ferguson 2019; Clausen, Demircioglu, and Alsos 2020). After two decades of intensive research, we know that the local government sector is “far more dynamic and innovative than its reputation” (Torfing 2019:2). Previous studies have documented that local government organizations develop different types of innovations (Korac, Saliterer, and Walker 2017; Walker 2014) that create public value (Chen, Walker, and Sawhney 2020). Extant studies also have collected extensive evidence on antecedents that promote or constrain the adoption or generation of public sector innovation (De Vries, Bekkers, and Tummers 2016). Consequently, the current literature explicates the public sector innovation process using a long list of antecedents that operate at different levels of analysis, and that affect public sector innovation adoption or generation in varying magnitudes (Cinar, Trott, and Simms 2019).

However, critics have increasingly voiced their frustration with such an “antecedents-based” understanding of the public sector innovation process and have begun to call for studies that “analyze the process dynamics that occur between particular antecedents” (De Vries et al. 2016:163) and actively incorporate “the characteristics of innovative public sector organizations” (Chen et al. 2020:1690). Thus, what seems to be lacking in the public sector innovation literature is a generative logic—also referred to as a conceptual motor—that can explain how antecedents

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relate to each other and why their interactions result in innovation and value creation (Van de Ven and Poole 1995; Van de Ven and Rogers 1988).

In view of the foregoing, the aim of our study is to identify the conceptual motor driving public sector innovation processes. In doing so, we ask the following question: How and why do local government organizations innovate? Building on the rich but fragmented evidence from prior studies on various aspects of public sector innovation (De Vries et al. 2016), we address this question by synthesizing the current literature using critical interpretative synthesis (Dixon-Woods et al. 2006a). Critical interpretative synthesis is a method of systematic literature review that acknowledges the voice of the author (Kazimierczak et al. 2013). In addition, our study is guided by the theoretical framework of the microfoundations perspective (Felin et al. 2012; Foss and Pedersen 2019). The microfoundations perspective explains how multilevel factors and their interaction impact organizations and result in “emergent, collective, and organization-level outcomes and performance” (Felin, Foss, and Ployhart 2015:576). We apply this perspective to understand how public sector innovation antecedents can be ordered and related to each other within and across levels of analysis and to explain why they interact.

Our study contributes to the existing literature in several ways. First, based on an in-depth analysis of over 100 antecedents from prior empirical research, we develop a new public sector innovation process model. The central element of this model is the theoretical concept of innovation capability. Innovation capability plays the role of the conceptual motor/generative logic in the innovation process in local government organizations (Van de Ven and Poole 1995; Van de Ven and Rogers 1988). It emerges from interactions among micro-, meso-, and macro-level microfoundations and has a multi-level nature. We find that through the theoretical concept of innovation capability, one can explicate the process dynamics among a plethora of public sector innovation antecedents and show *how* and *why* local government organizations continuously adopt and generate value-creating public sector innovations. Hence, our public sector innovation process model contributes to building a stronger theory about the public sector innovation process (Andersen and Jakobsen 2018; Fan, Meng, and Wei 2020; Gullmark 2021) and public sector innovation (De Vries et al. 2016).

Second, our study provides additional insight into the role of antecedents in the public sector innovation process (Cinar et al. 2019; De Vries et al. 2016). We find that antecedents of public sector innovation participate either directly or indirectly in the innovation process. Accordingly, we group antecedents of public sector innovation into two categories. The first group of antecedents—microfoundations—comprises building blocks of local government organizations’ innovation capability that play an active role in the continuous adoption and generation of innovation. The second group of antecedents, which we label as organizational and contextual antecedents, do not actively participate in the process of innovation adoption and generation. However, they play an important role in the public sector innovation process—they form the context where the development of innovation capability is possible.

Lastly, our study extends the current conceptualizations of public value theory (Chen et al. 2020; Hartley, Parker, and Beashel 2019) by introducing the concept of innovation capability into the process of public value creation in local government organizations.

Microfoundations as a theoretical framework

We use the microfoundations approach as a framework to theoretically structure, analyze, and interpret the empirical data obtained from prior studies (Felin et al. 2012). The microfoundations perspective rests on the assumption that the primary components of all organization-level constructs can be grouped into three categories: individuals, interactions and processes, and organizational structure (Felin et al. 2012, 2015). Individuals “greatly affect the behaviour, evolution, and performance of organizations” (Felin et al. 2012:1358). Interactions refer to interactions among individuals, while processes refer to process-based routines, methods of coordination and integration, and

organizations' technology and ecology, which support interactions among individuals (Felin et al. 2012; Foss and Pedersen 2019). The organizational structure is the design of decision-making in the organization and the organizational form itself (Felin et al. 2012; Felin et al. 2015). Accordingly, in our critical synthesis, the primary components of the conceptual motor that makes local government organizations innovative will fall into these three main categories.

Microfoundations “are about locating (theoretically and empirically) the proximate causes of a phenomenon (or explanations of an outcome) at a level of analysis lower than that of the phenomenon itself” (Felin et al. 2015:586). Hence, according to the microfoundations perspective, the conceptual motor that makes local government organizations innovative cannot be fully captured by using only other macro-level *explanantia*, such as strategy. To better understand how and why local government organizations innovate, we need to explore how individual-level factors affect the innovation process in local government organizations, how the interactions between individuals aggregate individual contributions into collective macro-level outcomes, and “how relations between macro variables are mediated by micro actions and interactions” (Felin et al. 2015:576).

The microfoundations perspective allows us to build a multilevel model of the public sector innovation process. Multilevel theoretical models hold great promise for enhanced theoretical clarity about the relationship among concepts (Salvato and Vassolo 2018). Such models typically “acknowledge the influence of the organizational context on individuals' actions and perceptions and the influence of individuals' actions and perceptions on the organizational context” and “connect the dots, making explicit the links between constructs previously unlinked” (Klein, Tosi, and Cannella 1999:243). Multilevel theoretical models usually take the form of a figure or diagram through which they show how a plethora of variables relate to each other and to an outcome of interest (Sutton and Staw 1995; Weick 1995). To constitute a theoretical contribution, such figures or diagrams should be guided by a theoretical argument that explicates why the observed relationships in the figure are expected (Sutton and Staw 1995; Whetten 1989).

The theoretical argument in our study is the generative logic/conceptual motor (Van de Ven and Poole 1995; Van de Ven and Rogers 1988). The generative logic/conceptual motor is a theoretical construct that explains how and why diverse elements—as well as their interplay—result in a macro-level phenomenon (Van de Ven and Poole 1995). Prior reviews of the literature on public sector innovation (Chen et al. 2020; Cinar et al. 2019; De Vries et al. 2016; Walker 2014) have not clearly elaborated on how local government organizations convert diverse antecedents into public sector innovations. Therefore, to further develop the field of public sector innovation, we believe it is imperative to critically synthesize the insights from prior research to reveal the generative logic/conceptual motor of the public sector innovation process.

The microfoundations approach is consistent with virtually all research methods (Felin et al. 2015; Versailles and Foss 2019). Prior studies have repeatedly demonstrated that the application of the microfoundations approach deepens our understanding of complex phenomena (Felin et al. 2015). This is particularly the case when the microfoundations research is based on the appropriate research design protocol, data collection, and data analysis approach (Versailles and Foss 2019). In our study, we use critical interpretative synthesis as our research method. We selected critical interpretative synthesis because it allows for building strong theory by producing a “synthesizing theoretical argument” that integrates evidence from primary empirical studies into a coherent theoretical framework (Dixon-Woods et al. 2006a; Flemming 2010).

Methods

Critical interpretative synthesis

To produce a reflexive account of the public sector innovation and entrepreneurship literature, we undertook a critical interpretative synthesis (Dixon-Woods et al. 2006a, 2006b). Critical

interpretative synthesis is a review method that allows for the synthesis, integration, and critical interpretation of evidence emerging from a wide range of qualitative and quantitative research (Flemming 2010). This method combines the elements of two distinct traditions of conducting a literature review—the conventional systematic literature review methodology and interpretative synthesis and data analysis, which are typical of primary qualitative research (Dixon-Woods et al. 2006a, Kazimierczak et al. 2013). The aim of critical interpretative synthesis is to “treat the research question as a compass rather than an anchor,” allowing the concepts and definitions to emerge from the literature analysis, and generate a theory with strong explanatory power (Dixon-Woods et al. 2006a:32; Kazimierczak et al. 2013).

Critical interpretative synthesis begins by iteratively assembling the first and second order themes that emerge from the data reported in primary studies into “third order constructs.” The “third order constructs” produce a new conceptual form called a “synthesizing argument” (Dixon-Woods et al. 2006a; Flemming 2010). The “synthesizing argument” integrates the evidence obtained in the separate studies into a coherent theoretical framework that consists of a network of developed “third order constructs” and the relationships among them (Dixon-Woods et al. 2006b). The generation of such an argument provides a deeper, more insightful, and generalizable understanding of the scrutinized phenomenon (Dixon-Woods et al. 2006b). This type of argument also allows for a critical assessment of the reviewed literature (Kazimierczak et al. 2013). The critical assessment is the result of acknowledging the authorial voice (Dixon-Woods et al. 2006a, 2006b). Although such an approach hinders the development of a “reproducible” synthesis, the produced “synthesizing argument” is well grounded in the data from the separate studies and is therefore verifiable and plausible (Dixon-Woods et al. 2006a).

Search methods and study selection

Our search strategy followed the critical interpretative synthesis methodological approach (Flemming 2010) and involved a formal search of the Web of Science electronic database for the relevant studies. The Web of Science was deemed appropriate because it allows for an accurate, comprehensive, and objective search of a broad scope of data sets from over 30,000 journals (Clarivate Analytics 2021).

Three concepts comprised the bases of our search terms: “innovation,” “entrepreneurship,” and “local government.” We decided to include studies that explore entrepreneurship in local government organizations because the concept of entrepreneurship is closely associated with innovation (De Vries et al. 2016). We define “innovation” as the development and implementation of something (e.g., a method or device) that is new, at least to the focal organization (Borins 2000). We define entrepreneurship as “decisions [that] are made and actions [that] are taken that result in new combinations of resources being carried out” (Teece 2016:208). Lastly, we perceive local government organizations as being entirely controlled by political forces, deriving most of their revenues from taxes and duties and operating in a nonmarket context (Boyne 2002).

To identify all the relevant studies, we used search terms that combined “innovation” or “entrepreneurship” and “local government” (and their variations). In total, we developed 22 search term combinations (see Table 1). This strategy yielded 8181 results.

The process of study selection involved several steps (see Figure 1). First, we screened the obtained records by the language used and the publication field. We excluded all studies that were not published in English and those that were not in the fields of business, management, public administration, political science, economics, or business finance (i.e., 5234 records). Then, we screened the remaining records for duplicates. This process led to the further exclusion of 1461 papers.

Next, we screened the abstracts and titles from the remaining 1486 studies. In doing so, we followed exclusion criteria we developed (see Table 2). The exclusion criteria were based on a broadly formulated initial research question. We decided that the local government organizations

Table 1. Used search terms.

Search terms	Records obtained
1. Innovation in the local government	1323
2. "Innovation in the local government"	1
3. Public innovation in the local government	515
4. "Innovation" AND "local government"	395
5. "Innovation" AND "municipality"	108
6. "Innovation" AND "town council"	0
7. "Innovation" AND "county"	237
8. Innovation AND state government NOT federal government	1519
9. Innovation in municipality	393
10. Innovation in town council	10
11. Innovation in county	420
12. Innovat* AND municipal*	1396
13. "Innovat*" AND "local government*"	913
14. Innovat* AND town council*	14
15. Innovat* in the public sector AND local government	184
16. Public entrepreneurship in the local government	86
17. Entrepreneurship in the local government	215
18. Entrepreneurship in the public sector AND local government	39
19. "Entrepreneur*" AND "local government"	189
20. "Entrepreneur*" AND "municipalit*"	193
21. "Entrepreneur*" AND "town council"	0
22. (Innovat* OR public innovat* OR entrepreneur* OR public entrepreneur*) AND (local government OR municipalit* OR town council OR county)	31

in this study should only comprise organizations such as town councils, municipalities, counties, or state-level governments. By excluding organizations that may be owned or controlled by local government or by other private or nonprofit actors (e.g., schools or hospitals), we ensured that the selected organizations were the most representative of the public sector and portrayed all of its key features as defined above.

We also decided to exclude certain types of innovation from our search. First, we excluded innovations developed by politicians—policy innovations and political innovations (e.g., new ways of voting). Second, we excluded public procurement/public-private partnerships.

Consequently, a further 1362 records were excluded (see [Figure 1](#)). The remaining sample of 124 publications was then selected for full-text retrieval and quality appraisal. The quality appraisal was undertaken independently by each author of this study. We carefully read and assessed the methodological rigor and theoretical relevance of the remaining 124 publications according to the quality checklist developed by Dixon-Woods et al. (2006b; [Table 3](#)). Our focus was on reviewing empirical evidence from prior research. Therefore, in this study, we included only empirical studies and literature reviews based on empirical data from primary studies.

In general, there was a high degree of agreement between the authors of this study on whether to include or exclude the focal study in the final sample. In all instances of discrepancy between the authors' assessments (in total, five papers), we performed a new, joint quality appraisal. Any differences in assessment were discussed until the consensus was reached, and all papers were coded as either "include" or "exclude." The outcome of the quality appraisal process was the identification of 74 high-quality and theoretically relevant papers (73 articles are purely empirical; one is a literature review based on empirical data from primary studies) that were included in the synthesis.

Data extraction and synthesis

The remaining 74 studies were subject to data extraction. In each study, we extracted the objectives, methods used, type(s) of local government organizations investigated, and key findings. Upon completing the data extraction form, we proceeded to a thematic analysis of the studies'

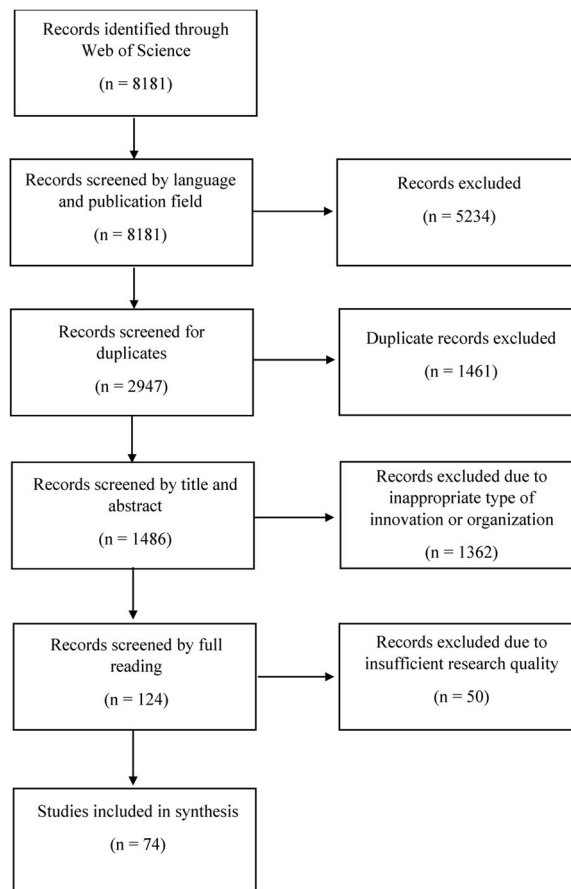


Figure 1. Process of study selection.

Table 2. Exclusion criteria.

Non-English publications

Publications in other fields than business, management, public administration, political science, economics, and business finance

Conceptual publications

Publications that examine innovations in public sector organizations other than the local government

Publications that examine innovations in organizations that can be a part of/controlled/managed by local government organizations or can be a part of the private/"third" sector (e.g., primary schools, hospitals, universities, kindergartens, or nursing homes), depending on a country

Publications that examine policy innovations in local government organizations

Publications that examine public procurement/public-private partnerships innovations in local government organizations

Publications that examine political innovations (e.g., new ways of voting, so-called "democratic innovations")

Publications that do not fulfill the quality criteria described by Dixon-Woods et al. (2006a)

Table 3. Publication quality appraisal checklist (Dixon-Woods et al. 2006a).

1. Are the aims and objectives of the research clearly stated?
2. Is the research design clearly specified and appropriate for the aims and objectives of the research?
3. Do the researchers provide a clear account of the process by which their findings were reproduced?
4. Do the researchers display enough data to support their interpretations and conclusions?
5. Is the method of analysis appropriate and adequately explicated?

content. The thematic analysis began with extraction of the main themes and constructs. In performing this analysis, we used the same terms described in the papers themselves (Flemming 2010; Kazimierczak et al. 2013). This approach allowed us to stay close to the explanations and interpretations performed in each primary study and to identify the “second order constructs” that were firmly grounded in the original data (Dixon-Woods et al. 2006b).

Next, we sought to recognize the main recurring themes in the included publications. The identification of recurring themes contributed to the generation of “third order constructs” that transformed the evidence from primary studies into new conceptual forms (Dixon-Woods et al. 2006b). The process of generating “third order constructs” was iterative and involved constant comparison of the emerging constructs with the evidence from the primary studies (Kazimierczak et al. 2013). For example, several primary studies found that local government organizations with flexible, simple, and organic structures are conducive to innovation. Given this evidence, we generated a “third order construct” called “Flat and flexible organizational structure” (Table 4 below).

In the last step, we mapped the relationships among the emerging “third order constructs” (see Table 4 below). We found that the concept of innovation capability forms the “synthesizing argument” of the theoretical framework (Flemming 2010). In other words, the synthesis we conducted indicated that the concept of innovation capability integrates the “the third order constructs” and more insightfully explains how and why local government organizations innovate.

Findings

Informed by the critical interpretative synthesis of the 74 articles in our sample, our study develops a multilevel model of innovation process in local government organizations (see Figure 2). We find that local government organizations innovate because they possess innovation capability. As shown on the left side of Figure 2, innovation capability arises in innovation-oriented local government organizations that operate in a disruptive environment. The innovation capability rests upon six micro-, meso-, and macro-level factors. Their interactions enable local government organizations continuously to sense as well as develop and seize ideas for public sector innovations. The public sector innovations that are generated or adopted in such a manner transform both the focal local government organization and its local environment by creating public value (right side of Figure 2). The following paragraphs discuss the obtained findings in detail.

Microfoundations of innovation capability in local government organizations

As shown in Table 4 and in Table S1 in the online supplement, extant literature provides evidence that the sources of local government organizations’ innovation capability are entrepreneurial individuals, their interactions, pro-innovation-oriented formal and informal coordination mechanisms, and organic organizational structures.

Micro-level microfoundations

Entrepreneurial public sector employees, managers, and politicians are the first building block. As Table 4 and Table S1 in the online supplement show illustrate, entrepreneurial individuals comprise the micro-level microfoundation in our model (see also Figure 2). Primary studies in our sample demonstrate that employees in innovative local government organizations have certain characteristics that enable them continuously to pursue innovation. We found that employees in such organizations are frequently described as entrepreneurial (Zerbinati 2012), proactive (Giebels et al. 2016), responsible in their attitude toward risk taking (Berman and West 1998), and empowered by top managers and politicians (Bartlett and Dibben 2002). Further, evidence

Table 4. Microfoundations of innovation capability in local government organizations.

Type of microfoundations	Second order constructs from primary studies	Primary studies
Entrepreneurial public sector employees, managers, and politicians	Managerial and political involvement in innovations	Askim et al. (2007)
	Employees as empowered public champions	Bartlett and Dibben (2002)
	Politicians and managers as sponsors of innovation	Bartlett and Dibben (2002)
	Responsible risk-takers	Berman and West (1998)
	Politicians and bureaucrats as innovators	Considine and Lewis (2007)
	Pro-innovation oriented, liberal, well-educated public managers	Damanpour and Schneider (2009)
	Civic entrepreneurs	Durose (2011)
	Institutional entrepreneurs	Entwistle (2011)
	Leadership credibility	Gabris et al. (2001)
	Proactive employees	Giebels et al. (2016)
	Senior managers' transformational leadership	Kim and Yoon (2015)
	Supervisors' transactional leadership	Kim and Yoon (2015)
	Politicians as power promoters and champions	Korac et al. (2017)
	Public managers as process and relationship promoters	Korac et al. (2017)
	Politicians and bureaucrats as policy entrepreneurs	Secchi (2010)
	Public entrepreneurs	Zerbinati (2012)
	Public entrepreneurs (professional politicians, spin-off creators, business entrepreneurs in politics, career-driven public officers, politically ambitious public officers)	Zerbinati and Souitaris (2005)
Alertness to pressures and needs	Scanning for ideas through advice networks	Considine and Lewis (2007)
	Perceived external competition	Kim (2010)
Experiential learning and knowledge sharing	Responsiveness to user demands	Walker et al. (2011)
	Organizational learning from benchmarking	Askim et al. (2007)
	Modularity and societal learning	Chen et al. (2009)
	Listening and learning innovation process	Kinder (2012)
	Learning/comparison (to peers)	Korac et al. (2017)
	Knowledge sharing	Swann (2017)
	Organizational learning	Walker (2014); Walker et al. (2011)
Innovative culture	Internal strategic information networks	Considine and Lewis (2007)
	Accessibility (in the climate of openness and under pressure by external stakeholders)	Grimmelikhuijsen and Feeney (2017)
	Transparency (in a culture without strong work routines, as it has more flexibility)	Grimmelikhuijsen and Feeney (2017)
	Participation (when there is ample organizational and technological capacity in combination with a less political environment)	Grimmelikhuijsen and Feeney (2017)
	Risk-taking, proactive and innovative culture	Kim (2010)
	The climate for creativity	Kim and Yoon (2015)
	Reinvention orientation	Ma (2017)
Management of innovation processes	(High) Degree of openness	Zhao (2012)
	Prospective strategic stance	Andrews et al. (2012); Gonzalez et al. (2013)
	Incentives and rewards	Bingham (1978); Newman et al. (2001)
	Large job autonomy	Giebels et al. (2016); Kim (2010)
	Low work routines	Grimmelikhuijsen and Feeney (2017)
	Clear performance objectives	Kim (2010)

(continued)

Table 4.
Continued

Type of microfoundations	Second order constructs from primary studies	Primary studies
Flat and flexible organizational structure	Employee empowerment by increasing autonomy and participatory decision-making	Kim (2010)
	Performance-Based Rewards	Kim (2010)
	Entrepreneurial orientation	Swann (2017)
	Performance information use	Swann (2017)
	Simple organizational structure	Bingham (1978)
	Flexibility - Flexible organizational structure	Kim (2010)
	Organic structures	Walker (2007)

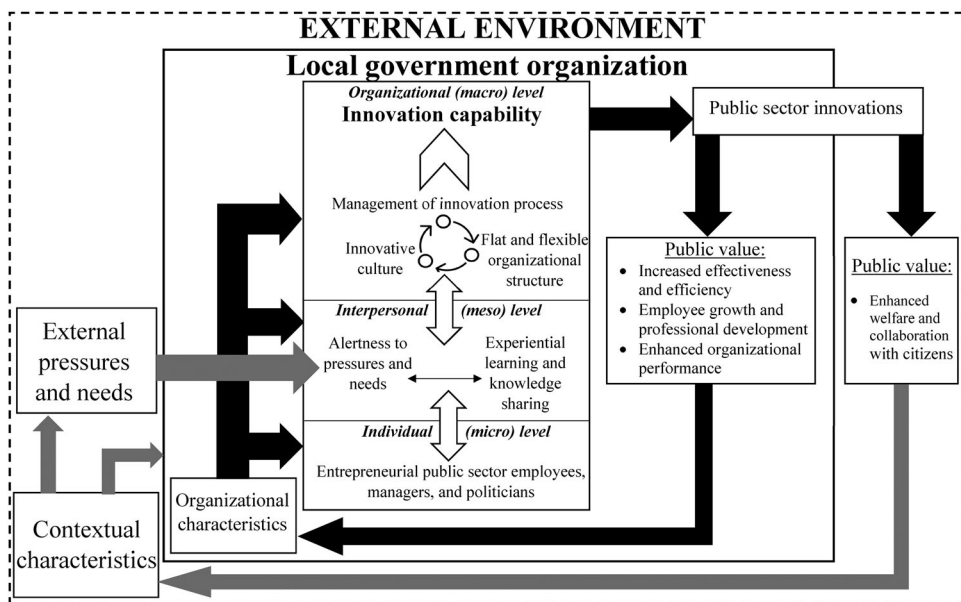


Figure 2. Organizing framework of innovation process in local government organizations.

indicates that continuous innovation is more likely if top managers and politicians in local government organizations possess leadership skills (Gabris, Golembiewski, and Ihrke 2001) and are innovation oriented (Damanpour and Schneider 2009), supportive (Bartlett and Dibben 2002), and visionary (Korac et al. 2017).

Meso-level microfoundations

Moving from the individual to meso level of analysis (see Figure 2) reveals the mechanisms that enable entrepreneurial, creative, and pro-innovation-oriented individuals to sense, develop, and seize ideas for public sector innovations. As Table 4 and Table S1 in the online supplement show, we found two mechanisms that illustrate the interpersonal ability of politicians, managers, and employees to act together to collectively develop ideas for public sector innovation: (1) alertness to pressures and needs and (2) experiential learning and knowledge sharing (see also Figure 2).

Evidence demonstrates that the capability to sense pressures and needs stimulates entrepreneurial individuals in local government organizations to generate or adopt innovative solutions to

the experienced pressures and needs. Prior research does not explicitly attribute this capability to an individual public sector employee or manager (Jun and Weare 2011). Rather, alertness to pressures and needs is understood more as a collective, interpersonal capability of entrepreneurial public sector politicians, managers, or employees in a local government organization (Homburg, Dijkshoorn, and Thaens 2014). The ability to sense ideas for public sector innovation involves activities such as scanning for entrepreneurial ideas in networks (Considine and Lewis 2007), listening to stakeholders' needs and demands (Jun and Weare 2011), monitoring changes in the legislation (Walker, Avellaneda, and Berry 2011), and following recent innovative projects in other public sector organizations (Kim 2010).

Once recognized, ideas for public sector innovations are further developed and seized. We found that entrepreneurial individuals produce innovative solutions to experienced pressures and needs through collective problem-solving activities (Walker 2014) and social interactions (Chen et al. 2009). Prior experience and knowledge sharing play a dominant role in such activities and interactions (Swann 2017). Building on diverse knowledge structures, social network ties and relationships, educational backgrounds, and work experiences, teams of public sector entrepreneurs considerably refine the identified ideas for innovations and mobilize resources that are necessary for their implementation in the focal local government organizations (Kinder 2012; Korac et al. 2017; Walker 2014).

Macro-level microfoundations

Continuous sensing, developing, and seizing of ideas for public sector innovations requires innovation-stimulating macro-level conditions in local government organizations. As Table 4 and Table S1 in the online supplement illustrate, our synthesis reveals three macro-level microfoundations that enable individual and interpersonal innovative actions and interactions in local government organizations: (1) innovative culture, (2) management of innovation process, and (3) flat and flexible organizational structure (see also Figure 2).

Innovative culture consists of informal coordination mechanisms that enable interpersonal entrepreneurial interactions between individuals (Felin et al. 2012). As both Table 4 and Table S1 in the online supplement demonstrate, local government organizations develop various "uncodified" coordination mechanisms to stimulate public sector entrepreneurs to continuously pursue innovations. Examples of elements that form an innovative culture in local government organizations include the climate for creativity (Kim and Yoon 2015), reinvention orientation (Ma 2017), and a high degree of openness (Zhao 2012).

Management of innovation process comprises formal coordination mechanisms that enable interpersonal interactions between entrepreneurial individuals in local government organizations (Felin et al. 2012). Our synthesis (Table 4 and Table S1 in the online supplement) reveals several innovation routines and processes that "formally" encourage entrepreneurial interactions among employees and managers. We found innovation-stimulating incentives and rewards (Newman, Raine, and Skelcher 2001), employee empowerment and large job autonomy (Kim 2010), and innovation strategies (Andrews, Boyne, and Walker 2012) to be among the most frequently mentioned innovation-stimulating formal coordination mechanisms.

The last macro-level building block of innovation capability in local government organizations is a flat and flexible organizational structure. As Table 4 and Table S1 in the online supplement show, we found that innovative local government organizations tend to have a flexible, decentralized, and organic organizational structure (Kim 2010; Walker 2007). The foregoing research indicates that flat and flexible organizational structures facilitate interactions between the top and the bottom of the organization. In addition, decentralized structures stimulate interdisciplinarity and improve communication across organizational departments (Bingham 1978; Kim 2010). Consequently, local government organizations with a flat and flexible organizational structure develop more creative and resource-effective solutions to the experienced pressures and needs.

The last stage of our model is the multilevel concept of innovation capability (see [Figure 2](#)). Our findings make it clear that innovation capability manifests itself in local government organizations through the individual-level actions (micro) and interpersonal-level interactions of public sector entrepreneurs (meso) that are enabled and strengthened by organizational coordination mechanisms and structures (macro).

Organizational and contextual antecedents of innovation capability in local government organizations

The previous section elaborated on a particular type of antecedent—microfoundations—which form the very nature of innovation capability. However, prior research has also paid a great deal of attention to the organizational and contextual antecedents that stimulate innovation process in local government organizations. [Table 5](#) and [Table S1](#) in the online supplement list the organizational and contextual antecedents that were identified in primary studies in our sample. We found that organizational antecedents comprise characteristics of innovation-oriented local government organizations. Contextual antecedents, in turn, consist of two main categories: (1) external pressures and needs and (2) contextual characteristics.

Overall, we found that innovation capability tends to be strong in local government organizations that enjoy political stability ([Askim, Johnsen, and Christophersen 2007](#)) and a good economic situation ([Ma 2017](#)) and that have a large organizational size ([Walker 2007](#)), rich and diversified networks ([Newman et al. 2001](#)), and highly competent and skillful human resources ([Walker 2014](#)).

Evidence from primary studies also indicates that certain contextual characteristics, pressures, and demands have a positive impact on establishing innovation capability in local government organizations. Our study reveals that various stakeholders signalize their needs and put pressure on local government organizations to come up with new, creative ideas that can extend the public value. The main sources of such pressures and needs are citizens ([Newman et al. 2001](#)), media ([Walker et al. 2011](#)), and central government and oversight bodies ([Korac et al. 2017](#)). The existence of these pressures and needs is the rationale for establishing innovation capability in local government organizations. Further, we found that in areas that are rich ([Zhao 2012](#)), densely populated ([Gonzalez, Llopis, and Gasco 2013](#)), and economically developed ([Wu, Ma, and Yang 2013](#))—in terms of infrastructure, the educational level of their citizens, availability of advanced technologies, and the number of private firms that actively co-create public value—local government organizations are particularly conducive to establishing innovation capability.

The role of innovation capability in the process of public value creation

We now turn to the role of innovation capability in the process of public value creation in the local government context. Our theoretical model (see [Figure 2](#)) demonstrates how multilevel innovation capability enables a higher rate of adoption and generation of innovation and thereby a continuous public value creation.

Overall, antecedents, such as decision makers' openness to opportunities ([Kamal et al. 2015](#)) and organic structures ([Walker 2007](#)), cannot be directly converted into technological ([Kamal et al. 2015](#)) and service and management ([Walker 2007](#)) public sector innovations. Building on insights from several studies in our sample ([Walker et al. 2011](#); [Wang and Feeney 2016](#)), we show that public sector innovations can be continuously generated or adopted because innovation capability acts as a mediator between "antecedents of public sector innovations" (see [Table S1](#) in the online supplement) and "actual public sector innovations" (see [Table 6](#)). In other words, we show that technological ([Kamal et al. 2015](#)) and management and service ([Walker 2007](#)) public sector innovations occur because individuals sense ideas (micro level) and develop them through

Table 5. Organizational and contextual antecedents that stimulate the establishment of innovation capability in local government organizations.

Third order construct	Second order constructs from primary studies	Primary studies
Organizational antecedents		
Organizational characteristics	Administrative and political regime stability Administrative capacity Dissimilar partners in organizational network Intergovernmental assistance Resources available to the local government Large organization size Technological and organizational capacity Liberal political ideology and social capital Healthy fiscal status Inter-organizational networks and partnerships Interorganizational collaboration (High) Local administration expenditure	Askim et al. (2007) Askim et al. (2007); Walker (2014) Askim et al. (2007) Bingham (1978) Bingham (1978); Gonzalez et al. (2013) Gonzalez et al. (2013); Ma (2017); Walker (2007); Walker (2014) Grimmelikhuijsen and Feeney (2017) Ma (2017) Ma (2017); Zhao (2012) Newman et al. (2001) Swann (2017) Zhao (2012)
Contextual antecedents		
External pressures and needs	Political influence Lateral pressures Pressure by oversight bodies Citizen expectation External pressures (e.g. the media) Pressure from external actors	Kim (2010) Korac et al. (2017) Korac et al. (2017) Korac et al. (2017); Newman et al. (2001) Korac et al. (2017); Walker et al. (2011) Korac et al. (2017); Walker, Berry, and Avellaneda (2015)
Contextual characteristics	Large population Environmental factors (the extent to which external stakeholders are involved in decision making - positive relationship) Social, economic, and political changes Service provider competition Between-states effects Lower unemployment in the area Higher population density Higher percentage of high school graduates More urbanized municipalities Central government agenda Mandate Strong civic culture of the citizens Economically developed administrative area/ geographic region (High) Local GDP	Bingham (1978); Gonzalez et al. (2013); Nelson and Svara (2012) Grimmelikhuijsen and Feeney (2017) Korac et al. (2017) Korac et al. (2017); Walker et al. (2011) Ma (2017) Nelson and Svara (2012) Nelson and Svara (2012) Nelson and Svara (2012) Nelson and Svara (2012) Newman et al. (2001) Walker et al. (2011) Walker et al. (2015) Wu et al. (2013) Zhao (2012)

interpersonal processes (meso level) and because certain organization-level factors ensure their implementation (macro level). Thus, ideas for innovation are adopted or generated because the multilevel innovation capability integrates and recombines decision makers' openness to opportunities (Kamal et al. 2015) and organic structures (Walker 2007) with other relevant antecedents within and across levels of analysis that are conducive to the focal innovations.

As Table 6 shows, primary studies in our sample explore various types of public sector innovations that are continuously generated or adopted by innovation capability in local government organizations. Evidence indicates that innovative local government organizations most frequently adopt technological public sector innovations such as e-government (Arduini et al. 2010; Jun and

Table 6. Generated and adopted public sector innovations in local government organizations.

Types of innovation	Innovations in primary studies	Primary studies	
Technological innovations	E-government	Arduini et al. (2010); Arduini et al. (2013) ; Arslan (2011); Bearfield and Bowman (2017); Brown (2007); Chen et al. (2009); Franzel (2008); Hinnant and O'Looney (2003); Ho and Ni (2004); Homburg, Dijkshoorn, and Thaens (2014); Jans et al. (2016); Jun and Weare (2011); Lee (2013); Li and Feeney (2014); Manoharan (2013); Nasi, Frosini, and Cristofoli (2011); Nelson and Svara (2012); Secchi (2010); Sobaci and Eryigit (2015); Tolbert et al. (2008); Wang and Feeney (2016)	
	Computer technology innovations	Bingham (1978); Brudney and Selden (1995); Dawson et al. (2016); Gonzalez et al. (2013)	
	Technological process innovations	Damanpour et al. (2009)	
	Online video streaming and archiving of city news/events	Franzel (2008)	
	Public Internet access kiosks and lounges	Franzel (2008)	
	Street-level government employee connectivity	Franzel (2008)	
	Wireless Internet districts/hotspots provided by city government	Franzel (2008)	
	Public management information systems	Franzel (2008); Lee (2008)	
	Geographic Information Systems	Franzel (2008); Nedovic-Budic and Godschalk (1996)	
	IntTech	Kamal et al. (2015)	
	Information and Decision Support Center	Nidumolu et al. (1996)	
	Technological innovations	Walker et al. (2015); Wu et al. (2013)	
	Management innovations	Performance plans	Arslan (2011)
		Strategic plans	Arslan (2011); Gianakis and McCue (1997); Secchi (2010)
Quality management systems		Arslan (2011); Gianakis and McCue (1997); Hansen (2011); Wu et al. (2013)	
Public management innovations		Borins (2000); Borins (2001)	
Best Value Process		Boyne et al. (2005)	
E-learning		Chen (2014)	
Process innovation		Damanpour et al. (2009); Gonzalez et al. (2013); Walker (2006); Walker (2014); Walker et al. (2011); Walker et al. (2015)	
Online training for city employees		Franzel (2008)	
Visual inventory and asset management information systems		Franzel (2008)	
Administrative innovations		Gianakis and McCue (1997); Kinder (2012); Smith and Taebel (1985)	
Open online government		Grimmelikhuijsen and Feeney (2017)	
Management by objectives		Hansen (2011); Wu et al. (2013)	
Management innovations		Korac et al. (2017); Walker, Damanpour, and Devece (2011); Wu et al. (2013)	
Service innovations		Smart city – Innova.TO	Michelucci and De Marco (2017)
	Strategic practices	Nelson and Svara (2012); Secchi (2010)	
	Reinventing government	Nelson and Svara (2012)	
	Risk management	Oulasvirta and Anttiroiko (2017)	
	Institutional innovation	Otto and Edelman (1990)	
	Changes in organizational design	Secchi (2010)	
	Strategic HR management	Secchi (2010); Wu et al. (2013)	
	Organizational innovation	Walker (2007)	
	Citizen service centers	Bhatti, Olsen, and Pedersen (2011); Franzel (2008)	
	Service innovations	Damanpour et al. (2009); Gonzalez et al. (2013); Kinder (2012); Korac et al. (2017); Walker (2006); Walker (2007); Walker et al. (2011); Walker et al. (2015)	
	Loving Care Supermarket and Urban Rural Migrant Worker Centers	Wu et al. (2013)	

(continued)

Table 6.
Continued

Types of innovation	Innovations in primary studies	Primary studies
Accounting innovations	Establishment of accounting shared service centers (SSCs)	Hyvönen et al. (2012)
	New budgeting processes (e.g. global budgets)	Korac et al. (2017)
	Performance measurement Design of new outcome-oriented programme budget format	Kwon and Jang (2011); Secchi (2010) ter Bogt and van Helden (2011)
Welfare innovations	Sustainability innovation Health care center	Bengtsson and Ågerfalk (2011) Waldorff (2013)
Collaborative innovations	Collaborative innovations Governance innovation	Gonzalez et al. (2013); Wu et al. (2013) Wu et al. (2013)

Weare 2011; Sobaci and Eryigit 2015) and computer technology (Dawson, Denford, and Desouza 2016; Gonzalez et al. 2013) innovations.

Further, our synthesis shows that innovative local government organizations have frequently pursued management innovations. Table 6 illustrates that the management innovations that have received the most attention in primary studies in our sample are broadly defined process innovations (Damanpour, Walker, and Avellaneda 2009; Walker 2006), management innovations (Wu et al. 2013), and quality management systems (Hansen 2011).

Lastly, as Table 6 depicts, we found that innovation capability in local government organizations also leads to the generation or adoption of (broadly defined) service innovations (Damanpour et al. 2009; Kinder 2012), accounting innovations (ter Bogt and van Helden 2011), welfare innovations (Waldorff 2013), and collaborative innovations (Wu et al. 2013).

Evidence from primary studies in Table 7 shows that public sector innovations, which are continuously generated or adopted by innovation capability, create public value both in the organization and local environment of the focal local government organization (see also Figure 2). Internally oriented public value creation involves enhancing the effectiveness and efficiency of local government organizations (Jun and Weare 2011; Lee 2013) and employee growth and professional development (Chen 2014), as well as enhancing organizational performance (Bengtsson and Ågerfalk 2011; Dawson et al. 2016). Externally oriented public value creation, in turn, involves enhancing welfare and collaborations with citizens through, for example, improving communication with citizens (Brown 2007) or increasing their satisfaction with the provided services (Borins 2001).

Discussion and research agenda

Previous empirical and literature review studies (De Vries et al. 2016; Korac et al. 2017) have mainly explored the antecedents that promote or constrain the adoption or generation of diverse innovations in public sector organizations. The multilevel theoretical model of the innovation process in local government organizations that we propose advances existing “antecedents-based” perspectives (see Cinar et al. 2019; De Vries et al. 2016) by developing a new theory about *how* antecedents relate to each other and *why* their interactions produce value-creating public sector innovations. The central role in our model is played by innovation capability, which constitutes the generative logic/conceptual motor (Van de Ven and Poole 1995; Van de Ven and Rogers 1988). In the remainder of this section, we elaborate on our findings and offer an agenda for future research on public sector innovation.

Table 7. Outcomes of local government organizations' innovation capability.

Third order constructs	Second order constructs from primary studies	Primary studies
Enhanced organizational performance	More sustainable performance Improved organizational performance	Bengtsson and Ågerfalk (2011) Damanpour et al. (2009); Walker et al. (2011)
Increased effectiveness and efficiency	Higher state performance Higher e-government performance Increased revenue Reduced costs Reduced cost of providing service Improvement of services or operations Higher ratio of enacted policies Improved services More efficient processes Slack resources Effectiveness and efficiency of core services Enhanced customer service Improved performance in the delivery of local public services E-government effectiveness Higher knowledge sharing, interorganizational collaboration, and more effective use of performance information	Dawson et al. (2016) Arslan (2011) Borins (2001); Brown (2007) Borins (2001); Brown (2007) Borins (2001) Borins (2001) Brown (2007) Brown (2007) Brown (2007) Brown (2007) Gianakis and McCue (1997) Jun and Weare (2011) Jun and Weare (2011) Kinder (2012) Lee (2013) Swann (2017)
Employee growth and professional development	Improved morale and productivity of employees, who perform services Professional development of employees	Borins (2001) Chen (2014)
Enhanced welfare and collaboration with citizens	Increased satisfaction of service users Improved communication with citizens	Borins (2001) Brown (2007)

The nature of innovation capability in local government organizations

In line with insights from recent studies (Gullmark 2021; Trivellato, Martini, and Cavenago 2021), our research demonstrates that innovation capability enables local government organizations to continuously adopt or generate various public sector innovations. We find that innovation capability is a product of entrepreneurial interactions within and among micro-, meso-, and macro-level microfoundations; it is not solely a macro-level construct (cf. Clausen et al. 2020). The ultimate sources of innovation capability in local government organizations are entrepreneurial public sector employees, managers, and politicians (micro-level microfoundations). Alertness to pressures and needs, dialogue, learning, and knowledge sharing are the mechanisms that collectively enable these public sector entrepreneurs to sense, develop, and seize ideas for public sector innovations (meso-level microfoundations). For these interpersonal interactions to occur, local government organizations must develop formal and informal coordination mechanisms as well as an organic organizational structure (macro-level microfoundations).

Our innovation capability-based process model is one of the first attempts to explore the nature of the generative logic/conceptual motor that stimulates local government organizations to innovate and create public value through innovation (cf. Gullmark 2021; Kobarg et al. 2017). Therefore, we see merit in further empirical research into the multilevel nature of local government organizations' innovation capability. Our synthesis encourages additional studies to explore how the multilevel nature of innovation capability can be empirically measured. It would also be interesting to examine whether different types of innovation capability can emerge from various micro-, meso-, and macro-interactions in local government organizations. The question of how the interpersonal (meso-level) interaction mechanisms of innovation capability catalyze the continuous sensing and seizing of ideas for public sector innovations also deserves additional research attention.

Furthermore, future studies should shed more light on the development of multilevel innovation capability in local government organizations. Questions that offer plenty of opportunity for future investigations include: How is multilevel innovation capability built into local government organizations? How does the multilevel innovation capability in local government organizations evolve over time? Does multilevel innovation capability have a life cycle? What is the relative importance of different types of organizational and contextual antecedents for the development of multilevel innovation capability in local government organizations?

The role of innovation capability in local government organizations

The finding that innovation capability is a central element of the public sector innovation process reconceptualizes our understanding of the role that diverse antecedents play in continuous public sector innovation adoption and generation (cf. Cinar et al. 2019; De Vries et al. 2016). First, we identify a new type of public sector antecedents—microfoundations. We label this particular group of public sector antecedents as microfoundations because they constitute the building blocks of innovation capability in local government organizations. Microfoundations play a critical role in the public sector innovation process—they are the very reason why local government organizations adopt and generate public sector innovations. Second, our analysis reveals that there exist many other antecedents that are important for the public sector innovation process. However, their role is not to actively participate in the focal process. We classify such antecedents as organizational and contextual and show that their function is to provide essential conditions for innovation capability to arise in local government organizations.

Our findings, as illustrated by Figure 2 and Tables 4 and S1 in the online supplement, show that innovation capability plays a mediating role in the public sector innovation process. The mediation effect of innovation capability occurs through the entrepreneurial interactions of its micro-, meso-, and macro-level microfoundations. Such interactions enable local government organizations to (re)combine diverse antecedents, which are found to promote a particular public sector innovation, into the actual public value-creating innovation. Drawing on Schumpeter (1949), we can describe the mediating role of innovation capability in the public sector innovation process in local government organizations as involving the entrepreneurial function—that is, the individual and collective ability to (re)combine old and new elements into innovation.

Since our study is one of the first attempts to explore the entrepreneurial function of innovation capability in public sector organizations, we believe that this area merits more research. For instance, a few studies in our sample seem to suggest that the strength of the entrepreneurial function may vary from one local government organization to another (Ma 2017; Tolbert, Mossberger, and McNeal 2008; Walker et al. 2011). We thus call for more quantitative studies that (1) empirically explore how and why local government organizations differ in their capability to (re)combine antecedents into diverse public sector innovations and (2) examine the strength of the relationship between innovation capability and different types of innovation. We believe that such studies also have the potential to reveal the extent to which other factors, such as contextual and organizational antecedents, mediate the relationship between innovation capability and value-creating public sector innovations. Further research should also elaborate on how different types of innovation capabilities developed in local government organizations affect the adoption or generation of public sector innovations. In this regard, a particularly interesting question for future research is whether innovation capability has a stronger influence on public sector innovation adoption or generation.

Innovation capability and public value creation

Our study extends the current conceptualizations of public value theory (Chen et al. 2020; Hartley et al. 2019) by introducing the theoretical concept of innovation capability into the

process of public value creation in local government organizations. Since, however, our synthesis is one of the rare studies on the innovation capability of local government organizations, further clarification and empirical validation are needed regarding the influence of innovation capability on the process of public value creation. First, future research could empirically (both qualitatively and quantitatively) investigate how the strength of innovation capability influences the public value creation process in local government organizations. An interesting opportunity for future work could also be to test whether and how the influence of innovation capability on the public value creation process in local government organizations differs when it comes to generated versus adopted public sector innovations.

Further, our synthesis demonstrates that public sector innovations generated or adopted through innovation capability create public value both within the focal public sector organization and in its local environment. Some studies in our sample (Bengtsson and Ågerfalk 2011) also indicate that the public value creation process is circular rather than linear. This suggests that the created public value not only addresses the sensed internal and external needs and pressures but also leads to new impulses for innovation in the local government organization and its external context.

As shown earlier, several studies in our sample (Ma 2017; Walker 2014; Wu et al. 2013) provide extensive evidence that certain organizational characteristics and a disruptive environment are conducive to the establishment of innovation capability in local government organizations. Moreover, recent research (Gullmark 2021; Trivellato et al. 2021) indicates that local government organizations continuously strengthen their innovation capability because the organizational characteristics and external context are not in a static state. These insights suggest that the public value that is created internally and externally may launch positive feedback mechanisms that reinforce the local government organizations' innovation capability. The nature and role of feedback mechanisms in the process of public value creation are, however, largely unexplored, and thereby appear to be an interesting avenue for further study. Examples of questions for future research include: How does the public value created through public sector innovations strengthen the focal local government organization and its external context? How can the strength of feedback mechanisms be measured? And which is more critical for the further development of innovation capability in local government organizations, the strengthening of organizational characteristics or the external context?

Implications for practitioners

Our research has important implications for public sector managers and policymakers. First, our theoretical model gives a tentative roadmap for how public sector managers can build and further strengthen the innovation capability in the organizations they manage. We show that the first step on the road to developing innovation capability is to ensure that there exist organizational and contextual conditions that have a positive impact on establishing innovation capability in a local government organization. Then, public sector managers should recruit public sector entrepreneurs and/or develop entrepreneurial competencies among the existing employees and lower-level managers. The recruited/trained entrepreneurial public sector employees and lower-level managers need to have the capability to be alert to the pressures and needs of the external context and their organization. They also need to be able to share knowledge and experiences with each other through interactions and dialogue. The role of top and middle managers is to build within their organization (1) an innovative culture that promotes such entrepreneurial interactions, (2) formal routines and tools that help to manage the innovation process, and (3) a flat and flexible organization structure that facilitates vertical and horizontal entrepreneurial interactions. Hence, the greatest value for public sector managers that emerges from our theoretical model lies in the insight that innovation capability is not only a macro-level construct that solely

depends on the activities and capabilities of top managers. Rather, our findings emphasize that the concept of innovation capability spans several levels in the organization and is thus built on the involvement of the whole organization.

Our research also has implications for policymakers who want an innovative local government/public sector. In particular, our review reminds policymakers that laws, regulations, policies, and other external demands and requirements do not automatically translate into innovations. Local government organizations first need to develop their innovation capability. As our study shows, local government organizations with innovation capability are considerably more likely to successfully transform new laws, regulations, policies, and other antecedents into actual public sector innovation and create public value. Therefore, it is important that policymakers take this into account when allocating funding and implementing policies in local government organizations.

Limitations

Although our study provides a comprehensive approach for understanding of how and why local government organizations innovate, it is also subject to limitations. First, whereas our search was not explicitly limited to journal publications, the final sample of studies did not include research that has been published in books, book chapters, or conference papers. It may be that some important and influential works in the field that have appeared in such sources were omitted from our synthesis. Second, our review has an interpretive nature that builds significantly on the authors' subjective reading of the extant literature. Third, while the microfoundations framework has provided guidance, it may also have constrained our interpretation of the extant literature.

Finally, in our study, we merely included publications that used the terms "innovation," "entrepreneurship," "local government," and their derivatives in their titles and/or abstracts. It is possible that by doing so, we did not obtain any records that found negative outcomes of innovation capability for organizations. However, it is also possible that a broader scope of search terms would decrease the coherence of the developed theoretical framework. Despite these limitations, we believe that our synthesis has assisted researchers in finding intriguing questions and relevant areas for further investigation. We also hope that our study will help the field of public sector innovation to further develop and grow.

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