

ARTICLE

Collective action problems in public sector innovation: A business model perspective

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We explore how the literature on business models can explain the outcomes of innovation attempts in the public sector. Our findings suggest that governments can access a well-developed knowledge domain for a public sector area but have a weak ability to propagate its value for society. Drawing on the business model literature concerning interdependence and distributed agency, we illustrate how a collective action problem related to innovation may arise in the public sector. We illustrate this new category of public innovation challenge with the (failed) case of the Swedish civil contingencies system and subsequently discuss a new line of inquiry for future research.

1 | INTRODUCTION

The public sector has occasionally been described as incapable of innovation. Peter Drucker (1985) stated that governments tend to maximize input rather than optimize production. However, the need for innovation in the public sector is perhaps more pressing than ever before. A prolonged recession in the European Union and structural changes in demography have increased the need for efficiency. In many countries, the government cannot increase taxes to provide services and is thus forced to renew these services itself. As governments comprise approximately 40% of many industrialized nations' GDPs (OECD, 2017), considerable potential for economic productivity remains untapped. Hence, the interest in and need for public innovation—defined as “the process of creating new ideas and turning them into value for the society” (Bason, 2010, p. 34)—is increasing as societies are challenged by significant economic problems.

Despite the growing government interest in advancing public sector innovation, academic research is limited. Although some research on innovation challenges in the public sector literature adheres to political science and economics (e.g., Borins, 2000; Libbey, 1994), the literature on strategic management and innovation is scarcely concerned with this empirical domain (Windrum & Koch, 2008). Specifically, few strategic management

perspectives explain how innovation efforts in the public sector differ from initiatives in the private sector (Bessant, 2005). This is surprising because governments face a pressing need to reinvent themselves (Osborne & Gaebler, 1992), particularly in situations of sluggish economic growth, increasing debt burdens and changing demographics. In turn, economic control, business tools and transformation models from the private sector have at times been adapted by the public sector (Hood, 1991; Laegreid & Christensen, 2013). However, to our knowledge, the business model literature has not yet been applied to the public sector, despite the fact that this stream of research has exploded over the past 15 years (Zott, Amit, & Massa, 2011) and is indeed a common public discussion among both scholars and practitioners (Ghaziani & Ventresca, 2005).

Recent literature reviews have confirmed that the business model construct has not yet been applied to the public sector (DaSilva & Trkman, 2014; Massa, Tucci, & Afuah, 2017; Wirtz, Pistoia, Ullrich, & Göttel, 2016; Zott et al., 2011). Here, a business model can be defined as “a system of interdependent activities that transcends the focal firm and spans its boundaries” (Zott & Amit, 2010, p. 216). Other scholars provide similar conceptualizations and state that a business model can be thought of as a set of participants, their relationships and the flows between them (Weill & Vitale, 2001). We subscribe to this view. As the business model construct usually includes stakeholders in an interdependent activity system—including private as well as public

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actors (Amit & Zott, 2001; see also Priem, Butler, & Li, 2013; Teece, 2010)—its use appears to be relevant when exploring public sector innovation challenges (e.g., Foray, Mowery, & Nelson, 2012) and multiple stakeholders, their roles, and relationships (e.g., Norrmann & Ramirez, 1993). Even so, public sector innovation research has ignored the exploration and presentation of how a business model perspective might add explanatory power to this form of societal challenge.

The purpose of this article is therefore to explore public sector innovation from a business model perspective. We illustrate how new ideas for public sector innovation fail to transform into value for taxpayers because the underpinning activity system is characterized by distributed agency and interdependencies, poor incentives to purchase, and unclear roles and relationships among actors, which makes it difficult to coordinate a large number of public and private organizations. When these conditions are present, the coordination of business modeling for public sector innovation fails. Hence, a target market for companies to invest in that can work for public innovation is lacking. These insights highlight that collective action problems may equally occur in the public sector and the private sector because the state may also fail to orchestrate roles. A collective action problem can be defined as a situation in which all actors would benefit from a certain action, but no single actor benefits enough to undertake the required action (Ostrom, 2014). Collective action challenges such as these have been overlooked by previous literature on public sector innovation and indicate the need for further caution regarding state involvement in innovation efforts. We thus uncover a hitherto unaddressed explanatory mechanism that it is crucial to address when analyzing innovation activities in the public sector and reflects the general importance of the business model perspective.

The article is organized as follows. We first conceptualize the existing literature on innovation challenges in the public sector from the business model perspective. Next, we report the case study design and methods. We illustrate the business model perspective using empirics from the civil contingencies agency in the results section. Finally, we discuss how the business model perspective on public innovation suggests a new line of inquiry for future research.

2 | LITERATURE REVIEW

2.1 | Public sector innovation from a business model perspective

Previous research has noted that innovations are often available to the public sector but remain undiffused (Rashman & Hartley, 2002) because governments might be more bureaucratic and unwilling to adopt new practices (Teofilovic, 2002). In turn, efforts towards efficiency and accountability within governments may result in less innovation (Potts, 2009). However, relatively little research has examined the ability of the state to engage in innovation activities.

Thus, the dynamics of innovation efforts in the public sector must be further addressed (Windrum & Koch, 2008); in particular, theoretically grounded perspectives that facilitate learning across the public and private sectors are urgently needed (Bessant, 2005; Klein, Mahoney, McGahan, & Pitelis, 2013). The public sector contains a multitude of stakeholders, such as a collection of state agencies that act on the international, national, and

municipal levels. Moreover, both voters and private corporations are influenced by a government's innovation endeavors. Therefore, it makes little sense to analyze public sector innovation efforts from a solely intra-organizational point of view (e.g., McGahan, Zelner, & Barney, 2013; Priem et al., 2013). Instead, value in public innovation is co-created by both the supply and demand sides (Norrmann & Ramirez, 1993).

The level of knowledge within research and industry is central to public innovations because it constitutes ideas that can be used to develop innovations (e.g., Foray et al., 2012; Teece, 1986), and business models are a means for turning innovations into value. Business models are broadly concerned with innovation from the perspective of an open system (Berglund & Sandström, 2013), which is defined as “a system of interdependent activities that transcends the focal [organization] and spans its boundaries” (Zott & Amit, 2010, p. 216) that describes “the value proposition for customers, the targeted customer segment, how the offering will be produced and delivered, and expected costs and profit” (Chesbrough & Rosenbloom, 2002, p. 533). Hence, the business model concept contains behavioral and cognitive elements that are intertwined into a logic of action (e.g., Massa et al., 2017). In contrast to closed systems, in open system business models for public sector innovation challenges, the markets comprise collective logics for profit (private) and not-for-profit (public) entities for innovation. In turn, interdependence becomes an important unit of analysis for understanding public sector innovation from a business model perspective.

2.2 | Collective action problems in public sector innovation

However, previous public innovation research maintains that the state acts as either a regulator or an orchestrator of preconditions for public innovations. Specifically, Bason (2010) suggested that it is not logical for the public sector to engage in innovation work because individuals usually lack both resources and incentives to develop or realize major innovation activities. In contrast to for-profit organizations, public organizations lack clear incentives for innovation (Wilson, 1989), especially if failure is penalized more than success is rewarded (Feller & Feller, 1981). The fundamental idea of public organizations, as Wilson (1989) stated, is thus to reduce uncertainty and introduce stability and routine and not to innovate. Hence, some have argued that public organizations are inherently incapable of innovation (e.g., Drucker, 1985). In other words, the state's role is neither that of an innovator nor that of an entrepreneur. While the political science literature has examined processes of regulatory change and reform but paid scant attention to innovation challenges (Rubalcaba, 2007), some economists have addressed the issue of public sector entrepreneurship (Ostrom, 1964; Wagner, 1966) and, among other factors, highlighted the importance of sponsors and champions (Bartlett & Dibben, 2002). These theorists contrast the previous research and advance the idea of innovative and entrepreneurial characteristics in state and public organizations.

In economics, two categories of challenges related to state involvement in the economy can be found. One concerns the incentive problem, i.e., the fact that politics will be subjected to the influence of the self-interested behavior of voters, interest groups, politicians, and government officials. This perspective has been advocated by several scholars at the intersection between economics and political science

(Buchanan & Tullock, 1962). One consequence of this view is that the actual outcomes of certain policies often become different to the those originally intended because self-interested interest groups exert influence, e.g., via rent seeking. The other category of challenges concerns the information problem (Hayek, 1944, 1945), which broadly concerns the challenge of gathering dispersed knowledge and making the right decision. A distributed system of agents such as a market provides a decentralized process of trial and error where localized knowledge is put into practice. In contrast, governments cannot centralize knowledge and therefore also struggle to make correct assessments.

The business model concept in business administration can potentially complement the aforementioned perspectives because business models span organizational boundaries and assume that the agents are interdependent, meaning that the outcomes are contingent on the actions of several intertwined parties (Pfeffer & Salancik, 1978). Systemic perspectives, such as the business model concept, usually indicate that changes in any one component of the concept generate feedback loops that affect other components (e.g., Forrester, 1961). Therefore, changes in one component may have ripple effects throughout a system, which makes changes inherently difficult to undertake and predict (e.g., Hayek, 1944). For example, poor incentives to innovate and a limited market mechanism may generate a severe procurement challenge in a constellation of actors, including firms within a public sector that aim to undertake innovation efforts (Norrman & Ramirez, 1993). As such, collective action problems may occur in the public sector, as the roles and relationships among multiple stakeholders remain uncoordinated. That is, a situation in which all actors would benefit from a certain action, but no single actor benefits enough to undertake the required action (Ostrom, 2014). In other words, we propose that the process of turning innovations into value for the public sector may fail unless its construction of a business model becomes subject to *both* regulation and orchestration through interdependent activities.

3 | RESEARCH DESIGN AND METHODS

To explore the topic explicated above, we chose a single case study approach. Case studies are often used to explore a previously unaddressed topic and to develop new theories because they enable a detailed description of the causal mechanisms and detailed insights (Eisenhardt, 1989). Case studies impose constraints upon attempts to generalize, and our paper is no exception in this regard. Because this paper addresses uncharted areas of research, we consider our research design appropriate.

We initially selected the Swedish Civil Contingencies Agency (SCCA) as our research site because it represented an excellent field setting for examining the extent to which new ideas are turned into value for taxpayers. The civil contingencies system in Sweden possesses the characteristics of a strong research knowledge body for new ideas, and it is typically financed by three sources: the SCCA, the EU, and private companies. First, the SCCA annually invests approximately SEK120 million in research in the field that is distributed across five research areas (SCCA, 2014). The research is mainly conducted in universities and colleges and distributed to approximately 60 projects with an annual turnover of approximately 10 projects. This

research project portfolio covers a wide span that ranges from policy-related social scientific research to practical technology and methodology research, and it is needs-driven. Second, the EU Framework Program funds Swedish research in the field that totals SEK100 million per year. The research areas include, for example, safe transport, the handling of hazardous chemicals, and the detection of explosives. Related funding for the civil contingency capacity (safety) is one of the largest EU-funded research areas, and Swedish actors have received 5% of the total program grant.

Jointly, these sources fund substantial research and knowledge development for innovation in creating value for taxpayers by renewing the capacity of civil contingencies. Thus, this context served as an exemplary field setting for examining business models as a means for turning new ideas into societal value, including the aforementioned private firms and citizens. This setting was also optimal in the sense that if the (business model) concept offers explanatory power within this exemplary context, then the case findings should be applicable in many cases (Flyvbjerg, 2006).

3.1 | Data collection

During the first and second quarters of 2015, we engaged as scholars with the SCCA and studied its organization and its relationships with other organizations throughout the contingencies system (Van de Ven & Johnson, 2006). Here, we observed how the system of actors struggled to generate public innovations despite the established bases of the projects and their financial assets. Subsequently, we revisited the field site during the fourth quarter of 2016 and the first and second quarters of 2017 to follow up on our initial observations. Based on these observations, following the tradition of clinical field research, we diagnosed challenges in the current system and continuously collected field data (Normann, 1970, 1977). Our fieldwork was grounded in four typical data sources: interviews, workshops, participant observations, and archival data. Table 1 provides an overview.

Informants represented major stakeholder organizations from the civil contingencies system. Observations of these organizations and their interdependencies provided us with a thorough understanding of the roles of and relationships between actors and their attempts to organize public innovation. Hence, our collaborative work consisted of interaction with the agency staff and with members of organizations representing the public sector of the civil contingencies system (Van de Ven, 2007).

3.2 | Data analysis

The iterative analytical process included observing data, structuring and interpreting emergent data patterns, and establishing dialogues with experts in the civil contingency field. During workshops with the SCCA and actors in the contingencies system, we tested our preliminary ideas based on the data to refine them and thereby increase the robustness of the empirical descriptions. Specifically, we prepared workshops by using the information gathered from the interviews and studying documents (archival data) that described the general conditions for innovation that were relevant to the public sector. The workshops served to generate new practical insights for the practitioners.

TABLE 1 Data sources

Type of data	Number	Length	Collected
<i>Interviews, n = 27</i>			
SCCA representatives	9	60–90 min	2015 (7), 2016 (1), 2017 (1)
SCCA group interviews	2	120–150 min	2016 (1), 2017 (1)
SCCA on-site discussions	10	10–20 min	2015 (7), 2016 (1), 2017 (2)
Private company representatives	2	40–45 min	2015
Municipality representative (national)	1	40–45 min	2015
University research representatives	2	90 min	2017
Institute research representative	1	75 min	2017
<i>Workshops, n = 5</i>			
SCCA internal groups, four to six persons	4	120–150 min	2015
Civil contingencies system, 21 key actors	1	1 day	2015
<i>Participant observation, n = 1</i>			
Civil contingencies system, focused on national fire brigade service, 60 persons	1	½ day	2017
<i>Archival data, n = 6</i>			
SCCA research innovation strategies	1	40 pages	2015
Trend assessment reports (national)	4	308 pages	2015
EU security report	1	56 pages	2015

That is, our clinical approach contributed to enhancing the participating practitioners' understanding of the "reality" they navigated; in this case, they strived for innovation but failed to make it happen (Normann, 1977). For example, we jointly elaborated the language of "innovation consortia" as a new strategic solution to improve the roles and relationships in the constellations of public and private actors. In turn, the workshops also served our research interest in developing theoretical insights about the dysfunctional market for civil contingency innovations (e.g., Balogun, Huff, & Johnson, 2003). Hence, the results contained not only analytical content but also information on the development of a vocabulary for the existing innovation preconditions in process, or what we abstracted as the business model mechanism of the failure to create value from new ideas within the civil contingencies system.

To organize a systematic analytical approach for performing engaged scholarship (Van de Ven, 2007), we conducted clinical research seminars within the research team. In five clinical seminars, we used visual mapping to analyze the system of actors, roles, and relationships from which we generated analytical insights. Subsequently, as we conducted fieldwork and engaged with representatives in the civil contingency field, we leveraged insights from the clinical seminars (Normann, 1970; Van de Ven & Johnson, 2006). This analytical approach revealed that the business model perspective was not only a method to structure the data but also a method to explain the failure of the roles and relationships and thus the formation of a dysfunctional market.

Finally, we arranged a major workshop in which 21 people from 11 organizations participated. We used this workshop to observe how the involved actors wrestled with the market situation in real time. The actors expressed their perceived needs for innovation, which spanned from new technologies to new manners of organizing in times of crisis, and they identified research projects of importance for the civil contingencies field. The workshop also generated data on the connection between areas of needs and areas of knowledge. This connection is limited not in the sense of a lack of common interests but in the sense of a lack of common arenas and incentives for interaction; this limitation poses a challenge to the materialization of business models. Importantly, the insight about business models as a means for public innovation turned out to be robust, as we re-entered the field in 2016 and collected and analyzed additional data.

4 | FINDINGS: INTERDEPENDENT ACTIVITY FAILURES IN THE MARKET

This section explains the interplay between public and private organizations in a society's civil contingency capacity and in turn illustrates the major public innovation challenge. Impeded public sector innovation is rooted in three major dimensions of interdependence that reveal how and why business models appear to be particularly relevant for understanding the problem. The first is that the market is characterized by distributed purchasing power, the second is that incentives diverge, and the third is the status quo in roles and relationships among stakeholders. These three dimensions reveal how coordination becomes a key challenge, as exemplified below.

4.1 | Interdependent activity failure I: Large market with fragmented purchasing power

The data revealed that innovation demand is characterized by vaguely defined needs in the civil contingency capacity regarding the practical outcomes from research areas as well as a lack of clarity concerning the ambitions of innovation. The civil contingency area has developed as a decentralized structure with financial responsibility distributed among several hundred municipal authorities that lack a common objective to utilize the available knowledge. As one senior manager from a major defense and security company expressed: "We have technology for civil contingency products, but whom should we talk to? Many potential customers are so small that they don't even have a person responsible for purchasing solutions for civil contingencies, even less so capacity for engaging in innovation efforts." A senior official for a municipal fire brigade expanded this view from a customer perspective: "We are a major customer in this system, relatively speaking. Yet our resources are insufficient when it comes to investing in new solutions. Our operations absorb the budget. We could in theory collaborate with other fire brigades on innovation initiatives, but who should coordinate?"

The implication is a dilemma: each authority may demand innovation but does not receive realized functionality because these products and services are too small to function as a market and are unable to form a functioning national market together. Even if a private company had the competence to innovate new solutions for the civil

contingency area by searching for and addressing adequate innovation demands and needs, representatives reported that their companies had few, if any, public partnerships with sufficient purchasing power. This situation of distributed agency and related interdependence provides a partial but important explanation for the insufficient investments in new products and services.

4.2 | Interdependent activity failure II: Demand for innovation but diverging incentives

Both experts and representatives of the civil contingencies area agreed that, from the perspective of potential customers, innovations were in great demand. The demand included areas such as transnational technical systems in management, communication, and information, local needs for new forms of education, training, and exercises, and the maintenance of the existing infrastructure, such as emergency services. Specifically, the issue of the relatively high rates of elderly people who die in fires every year exemplifies an innovation need as a key priority by several first responder organizations. This innovation need is complex because it involves a combination of technologies that give early warning and products that support rescue operations. For instance, new forms of the effective distribution of knowledge regarding preventive actions to relatives and organizations that support elderly people is part of the innovation need. More technical solutions are also called for, such as better sensor systems that can indicate a fire or even a risk of fire and thus provide early warning and subsequently more timely responses. In turn, first responders possess a great need for innovations regarding, for example, access to and visual presentation of 3D maps and 3D floor plans that can help prepare the fire brigade on their way to the rescue and thereby reduce the risk and increase the speed of their operations. These areas of innovation needs, as well as many others, are thematically fairly well matched by the resource base and knowledge developed through research. Hence, the actors within the civil contingencies system demanded innovation, and potential suppliers of innovations are available; nevertheless, new ideas remain unrealized.

At the local level, however, the actors experienced a lack of responsibility and unclear incentives for initiatives: *"There is not a clear need in the market. That makes it rather uninteresting for companies to invest in the development of new products and for researchers to distribute results if nobody wants to buy in the end."* Although some companies, such as the defense corporation Saab, invested significantly in their internal research and development, our interviews revealed that this had more to do with making better use of previously developed knowledge than exploring new areas. In short, private companies focused on managerial and information and communication system knowledge because *"the technology is already on the corporate shelf,"* as a private firm executive stated. A representative from one of the industry organizations explained: *"The industry is not interested in developing a gadget that just works in the emergency services of a few customers because a gadget must also work for more players in order to be commercially interesting for our company."*

In contrast, customer needs emerged at the European market level, but the market was difficult to enter. Specifically, although analysts have assessed that some sectors, such as electricity supply and

transmission, have good growth potential both nationally and internationally, protectionism has propagated over the years, making international marketization of the civil contingencies system a poor incentive for domestic companies. As one public manager expressed: *"Swedish authorities must think as protectionists; other countries do it, although our innovation needs in this area are quite the same."* Unsurprisingly, the commercial incentives to develop civil contingency solutions appeared to be low or non-existent.

Unless adequate mechanisms are designed to overcome the challenge of diverging incentives, public and private organizations will be unable to formulate value propositions that motivate investments in public innovation. Indeed, value propositions are a focal point in innovation endeavors; without them, parties lack incentives to engage. This dimension thus constitutes an important part of explaining why attempts at public innovation rarely transform into value creation and functioning markets.

4.3 | Interdependent activity failure III: Market actors are open to relationships, while roles remain unclear

When roles for orchestrating public sector innovation are lacking in public-private relationships, the market becomes dysfunctional with conflicts and poor task solutions at worst and the status quo at best. *"On the local level, we work as independent islands, and there is no authority on the national level that brings us together when it comes to addressing innovation needs,"* reported one of the SCCA's agency managers. Another said that *"A government agency used to act as a center of gravity for some initiatives with a general national interest, but that was a long time ago. Today, no one has that role or that legitimacy."* When a local municipal manager asked for more support driving innovation, a senior manager at SCCA expressed the challenge in the following manner: *"It is not our task to coordinate innovation initiatives, simply because we are not given that task by the government. And, we are only four persons working in my department, so we can at best give you some advice."* Thus, at the national level, the role of orchestrating investments has not been formalized with government authorities.

Public innovation failure, as illustrated by the SCCA, occurs when the roles and relationships of business models are not reconfigured to create the necessary preconditions for companies to address innovation needs. Indeed, the role of bringing knowledge owners together for innovation efforts was uncoordinated, and yet another key role remained unclear. As one representative from a national umbrella organization of all municipalities stated: *"There is an implicit assumption in Sweden that the market will take care of this. But it is an illusion of a functioning market. Each individual actor is too weak to actually do much in the way of innovation initiatives."* Private firms also noted this unclear role for regulating the sector. One private executive stated: *"It would be efficient to address innovation needs across authorities, but who pays for it?"* Even if the public body of research knowledge indicated the availability of complementary assets for private companies to profit from innovations, it would simply have been too risky for them to initiate innovation projects under conditions of unclear roles. After all, the companies lacked a sufficient market to address.

In sum, the above three dimensions exemplify business model failures from a strong knowledge base for public innovation. As a result, research-based knowledge is rarely diffused with public innovation investments into commercialized offerings for improving the sector of the civil contingencies system—which is, indeed, a crucial capability of the nation in times of migration crisis and security policy changes in the European landscape. Next, we discuss this challenge from a business model perspective because it clarifies parts of the problem.

5 | DISCUSSION

Our thesis is that it is difficult to achieve public sector innovation for societal challenges when the preconditions for business models are lacking. This paper specifically identifies three conditions that impede the establishment of business models for public innovation: fragmented purchasing power, diverging incentives, and unclear roles among relationships. We interpret these findings as collective action problems. Clearly, all actors would benefit from synchronized purchasing power and converging incentives, but neither the municipalities nor the firms would benefit enough to undertake the actions to change the conditions. Similarly, the sectoral authority (SCCA) would also benefit, but because innovation was not stipulated as the authority's task *per se*, its action depended greatly on other actors in the public sector. These conditions offer an important, albeit not comprehensive, explanation for why business models for public innovation are not established; the combination of these conditional factors creates an insufficient context for business models to function. As a result, market formation remains poor. To the extent that this is a general characteristic of public sector areas, such as civil contingencies, new societal solutions are called for to pave the way for business models that enable public sector innovation.

To restore the productive conditions for public sector innovation, such as in the case of a civil contingency system, the business model perspective indicates that the renewal of relationships and roles is necessary, possibly also including new actors. This renewal is relevant when the behavior of existing local actors does not account for the entrepreneurial capacity or the state because the state's role is usually to provide stability throughout society. Nevertheless, a sponsoring and stabilizing role is decisive when a system has backfired in public sector innovations because it may legitimize new actors to pursue entrepreneurship. Building on the seminal idea that the state can sustain its stabilizing role (Wilson, 1989) by acting as a sponsor of entrepreneurship (Bartlett & Dibben, 2002), it can be stated that productive business models for public sector innovations are created through the addition of a new role that is legitimized to act as a coordinating champion.

This notion is particularly true for public innovation efforts when the demand in a particular sector in need of renewal becomes fragmented. A coordinating champion is a new role that establishes stability and thereby the preconditions for innovation throughout an open public system. As such, the business model perspective contributes to understanding how stability and changes in role configurations are two dimensions of public innovation (*cf.*, Markides, 2013; see also, *e.g.*, Farjoun, 2010).

Arguably, the roles connected to business models are particularly important for understanding the debate on public organizations' inability to innovate. The reason is that the unit of organizational roles reveals how the relationships in dynamic systems evolve with design into a process of the systemic distribution of innovation and value (Norrman & Ramirez, 1993). Here, systems of distributed agency backfire in the absence of roles that provide both stability and change, *i.e.*, regulating and orchestrating. A business model perspective suggests that public sector innovations may, at least occasionally, require a constellation of roles that account for both regulating and orchestrating; without these roles, the distributed agency system appears to suffer from inertia. This underscores the importance of the need for a better understanding of boundary spanners in business models (Zott *et al.*, 2011). Thus, a business model perspective on roles and relationships may be a fruitful research avenue to gain a better understanding of "public bads—the bureaucratic deployment of policing capabilities becomes excessive" in public sector innovation efforts (*cf.* Klein *et al.*, 2013, p. 81).

Indeed, we have illustrated that a public sector may have access to a breadth of research-based knowledge and industrial product technology, but innovation outcomes can be inferior to what all involved organizations expect. In other words, interdependent organizations in public sector systems can access a well-developed knowledge base but have a poor capacity to utilize and transform it into the competences and capabilities needed to fulfill their societal mission (*e.g.*, Teece & Pisano, 1994).

The fact that public organizations often fail to innovate as great societal challenges persist constitutes the basis for this paper to offer a new perspective on public sector innovation. Specifically, this paper highlights how inconsistent conclusions in the previous literature on public sector innovation (Bartlett & Dibben, 2002; Wilson, 1989) are valid from a business model perspective. Although a business model perspective is not novel in its attempt to understand innovation (*e.g.*, Bucherer, Eisert, & Gassmann, 2012), it provides a new lens through which to explain innovation challenges in the nexus of public–private stakeholders that adhere to political markets. The explicit focus of business models on value creation, appropriation, and systemic interdependence among distributed actors separates them from economic theories on government involvement.

Having taken a first step toward applying business model thinking to public sector innovation, we perceive ample opportunities for future research. In this paper, we have conceptualized business models from a contingency lens in a holistic manner. Future research on how different frameworks, such as the business model canvas, can be fitted to the particular case of the public sector is therefore welcome. Specifically, more research exploring how different types of incentives and purchasing power influence the need for coordinating functions to form the preconditions necessary for the establishment of business models is called for. Research should investigate the characteristics of public–private business models because they provide renewed vigor to the development and learning processes that generate innovation for contemporary societal challenges in which governments often disappoint many stakeholders (Sapolsky, 1972). We assumed that business models are open systems that purport context-dependency and are thus applicable to different societal challenges. However, the logic of

utilizing profit goals versus social goals is delimited from this study and thus should be considered in future studies.

Moreover, because there is a more general need to apply an open-system perspective to the public sector (e.g., Lazzarini, 2015), our study elucidates predominantly closed perspectives. For example, public sector reforms have been dominated by the debate on new public management (Hood, 1991). More recently, the debate has become reinvigorated, and innovation is often explicitly included in rhetoric but nested in a closed-system perspective in which public agencies operate the economy independently and in which the logics from the private sector are applied to public management control rather than public-private exchange. Therefore, it is unsurprising that agencies fail to introduce innovative reforms to market outcomes in their responsibility for creating and capturing societal value. Fortunately, the business model perspective provides an alternative view from which public innovators can draw for their incremental as well as radical endeavors (cf. Markides, 2013). The rationale in open systems is important because it allows practitioners to recognize hybrid logics and paradox forces (e.g., Jay, 2013) that operate far beyond the traditional view on the hierarchy in public sector organizations (Goldsmith & Eggers, 2004; Powell, 1991). Indeed, the business model perspective holds the potential to facilitate public actors in collective actions for innovating new solutions, their open economy, and value creation. We therefore welcome future contributions on the topic.

5.1 | Implications for practice

This article produces important practical implications for public authorities wishing to generate innovation as well as companies considering engaging in public innovation efforts. To create the conditions for innovation in the public sector, there is a need for the coordination of incentives and purchasing power that are sufficient to establish functioning business models with incentives to invest in innovation. One reason that public innovation fails to materialize is that these conditions are not established; hence, functioning business models are not established and market formation fails. In such situations, the demands for innovation and knowledge that can be used for innovation face the risk of becoming poorly aligned.

Overcoming these hurdles of public innovation may occasionally require the addition of a new actor and role to the system. Clearly, if the existing system of actors are to succeed with innovation in the public sector, then their success should benefit from a coordinating champion that brings together various government entities and private contractors in the creation of a target market that generates incentives to establish business models. Our findings illustrate that even a central authority in society, such as a state, may suffer from a lack of coordinating power and may suffer from the same collective action problems that are often depicted as prevalent in the private sector. In turn, public agency managers need to cope with this collective action problem. To begin with, public managers should identify the innovation needs of their own organization and make these explicit. Making innovation needs explicit may serve as point of departure for dialogue with other similar agencies. Such dialogue can aim to establish a public sector innovation agenda that should be explicitly linked to financial assets, as these linkages can trigger commercial actors' interests in

contributing. Additionally, while public sector agendas are important, they are insufficient without organizational solutions. The formation of the market could start with the roles of independent agents in facilitating dialogue in the nexus of actors that represent public demand and private supply nexus suppliers. Once an innovation project is defined, a coordinating body of actors is much needed in the process of developing the business model for the new solution to a social need.

One implication of our finding is that state initiatives may be plagued by collective action problems concerning the role of the government in innovation activities. Government involvement is frequently justified on the basis that market failures, such as those due to collective action problems, need to be corrected by a central authority. Our results imply that such attempts may be futile because government initiatives can suffer from the same form of problem that they are supposed to remedy.

Arguably, this implication is applicable not only to the area of civil contingency but also to other major challenges, such as attempts at renewal and innovation in the public sector. Health care and education are two such areas in which it is conceivable that innovation attempts will not work due to diverging incentives and a lack of coordinating functions and, consequently, insufficient conditions for business models to emerge. Hence, other sectors with diverging incentives and a large collection of involved actors are likely to face the same challenges of limited coordination and collective action. The business model construct appears useful as an analytical lens because it is explicitly concerned with activity systems that span the organizational boundaries of public and private as well as hybrids.

5.2 | Conclusion

In this paper, we have argued that the business model perspective provides explanations for why innovations often fail to materialize in the public sector. We have explored innovation challenges in the public sector from a business model perspective. The article explains why government authorities sometimes need to both regulate and orchestrate role-based relationships for public sector innovation to evolve in a durable manner. It appears that governments may lack the required coordinating ability to establish business models and thereby make innovation efforts. Our conclusions therefore do not imply that the state should take a more active role in innovation. Rather, we introduce a new category of challenges that implies caution regarding state involvement.

Using the Swedish civil contingencies sector to illustrate the potential for a business model perspective in public innovation challenges, we conceptualize the public sector as a dispersed set of actors with diverging incentives both across various government entities on the national and regional levels and across private firms. All these actors are dependent on one another for innovation to occur, but no single actor has sufficient incentives to enact a change. As these conditions are overlooked and/or unaddressed, innovation in the public sector becomes a collective action problem for which no one actor alone is able to create functioning business models. In adopting the business model construct from a contingency perspective, we therefore uncover hitherto unaddressed challenges regarding public sector

innovation. Here, government actions may be subjected to collective action problems in similar manners as markets.

The previous literature on innovation in the public sector has thus far not applied the business model perspective. Our contribution lies in doing so because it highlights the systemic challenge related to the problematic pursuit of innovation in the public sector. In this manner, the business model perspective complements the informational view because it emphasizes the relationships and roles throughout the system of actors in the making explicit of self-interests and financial assets. Consequently, further application of the proposed perspective requires empirical research. The perspective advanced here proposes interrelated dimensions of the collective action problem and hence offers an opportunity for novel empirical studies. In conclusion, the business model perspective provides an important step towards rethinking innovation challenges in the public sector and the social economy.

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