OPEN INNOVATION AS BUSINESS MODEL GAME CHANGER IN THE PUBLIC SECTOR

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Research paper

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Abstract

Organizations are increasingly looking to tap into external knowledge sources through open innovation initiatives. Most public sector agencies are in the early stages of adoption of open innovation and are in the process of defining relevant issues. Once such issue concerns how open innovation strategies influence public sector business models. This study seeks to understand this interdependency. Building upon an action research study on crowdsourcing related to policies around telemedicine conducted in the Piedmont region of Italy, this paper highlights how public sector business models could be better aligned with open innovation strategies (in our case crowdsourcing). Our results indicate that in adopting a crowd-based open innovation strategy, the content, structure and governance dimensions of public sector business model need to be aligned accordingly. The content of the business model is altered to offer citizens a user-oriented value proposition stemming from a participatory process. The structure of the business model changes to include citizens as co-creators of public value and as key partners of the public sector. Finally, as part of governance dimensions, the study highlights the role of non-monetary rewards to employees such as training and support staff.

Keywords: Open innovation, Crowdsourcing, Business models, Public sector.

1 Introduction

Closed innovation has been the main source of generating, creating and implementing ideas in organizations till the beginning of the 20th century (Chesbrough, 2003). However, as firm and its boundaries continue to get blurred and information and communications technologies (ICTs) become increasingly accessible, organizations sought to leverage external resources and wisdom of the crowd to explore innovative ideas (Lee, Hwang, & Choi, 2012). This new paradigm shift from closed innovation to open innovation has led many organizations to avail the benefits of open innovation.

Unsurprisingly, public sector has also acknowledged the usefulness of incorporating open innovation strategies. A growing number of public sector organisations are now reaching out to an external audience for good ideas from across the world for new ways to deliver public services. For instance, federal managers are employing a new instrument called Challenge.gov to implement open innovation paradigm to crowdsource solutions from previously untapped problem solvers and to leverage collective intelligence to tackle complex social and technical public management problems (Mergel & Desouza, 2013; Osella, 2014).

Scholars argue that an interesting similarity exists between private and public sector innovation: incorporating external knowledge sources into the innovation process (Lee et al., 2012; Nambisan, 2008). Instead of innovating all by themselves, those agencies attempt to make the greatest use of external knowledge sources to add public value. The role of open innovation as a promising and effective tool for governments is still an underexplored topic (Loukis, Charalabidis, & Androutsopoulou,
Although there exists a general agreement on the usefulness of open innovation paradigm, there is a concern that open innovation strategies impact organizations differently (Saebi & Foss, 2015). Implementing open innovation requires integrating external sources of knowledge into the innovation processes and restructuring the BMs to incorporate open innovation strategies (Keinz, Hienerth, & Lettl, 2012). The issue of redesigning BMs became even more critical for public sector during the 1980s at the advent of new public management, which represented a shift towards a managed and “market like” orientation for the public sector (Haque, 2007). This shift in turn impacts the BMs of the public sector with a higher focus on value creation and service delivery (Ranerup, Hemriksen, & Hedman, 2016). Some research has analysed the components of BMs in the realm of public sector, albeit, with a focus on technological platforms such as e-petition system and public sector platforms (Janssen, Kuk, & Wagenaar, 2008; Panagiotopoulos, Al-Debei, Fitzgerald, & Elliman, 2012; Ranerup et al., 2016).

Despite the consensus on the importance of BMs and open innovation strategies in public sector, limited attention is paid to linking the BMs with the open innovation strategies. It is against this backdrop that this paper investigates the question of how public sector organizations could align its BMs with open innovation strategies. Building upon the framework developed by Saebi & Foss (2015), this study aims to illustrate how public sector could restructure its BMs to better incorporate open innovation strategies. In particular, this study considers the public agency’s open innovation strategy (at the business-unit level) as the unit of analysis and examines how adopting a particular kind of open innovation strategy affects its business model dimensions.

The rest of the paper is structured as follows: Section 2 reviews the current discourse and literature around open innovation strategies, public sector and the business model concept. Section 3 introduces the research methods, context and data sources. Next, we discuss the key takeaways and findings in section 4. The findings are further discussed and elaborated in section 5. Section 6 concludes by providing directions for future research.

2 Linking open innovation strategy to business model design

2.1 Open innovation and business models

Open innovation implies opening up some parts of or the complete innovation cycle. It further indicates that valuable ideas emerge from either inside or outside the firm and can exploit the market from inside or outside the firm as well (Chesbrough, 2006). There are mainly two different processes of open innovation (Gassmann & Enkel, 2004). The first kind, called the inside-out process, focuses on placing some of the firm’s assets such as knowledge outside the firm’s boundaries, also referred to as “knowledge/technology exploitation” (Ghobadian et al., 2007; Lichtenthaler, 2008). The second process, termed as outside-in process, involves extending the firm’s knowledge base through the integration of external resources such as partners, suppliers, and customers with the aim to develop better product and services (Frey, Lüthje, & Haag, 2011). Along these lines, many organizations tap into the expertise of consumers, especially with the use of Web 2.0 technologies (e.g., crowdsourcing). Such forms of open innovation tend to be more democratic and successful than innovations that are developed in-house (Hippel & Krogh, 2003; Von Hippel, 2009).

Research has also established significant advantages that accrue as a result of incorporating open innovation strategies. Such advantages include low research and development, and transaction costs, access to external knowledge sources and increased customer orientation (Chesbrough, 2003; Von Hippel, 2010). Despite the agreements about the benefits that accrue from open innovation strategies, there exists considerable heterogeneity in open innovation performance among firms, signifying that organizations differ in their ability to deal with the challenges associated with open innovations (Saebi & Foss, 2015; Salge et al., 2012).
Some researchers have attributed these performance differentials to the organizational practices, degree of openness and alignment of open innovation strategies with the BMs (Leiponen & Helfat, 2010; Saebi & Foss, 2015). For example, Saebi & Foss (2015) examined the impact of adopting four different open innovation strategies on the BM dimensions (content, governance and structure). Some research has also stressed the importance of devising appropriate rewards and remuneration systems to entice the interest of employees and management in open innovation initiatives (Keinz et al., 2012; Saebi & Foss, 2015). Carlsson et al (2011) empirically investigated the effect of six open innovation practices (i.e., co-development of new knowledge or innovation in co-operation with customers, suppliers, competitors, cross-sector companies, consulting firms and universities) on innovation performance, using data collected from 141 listed companies from Germany, Switzerland and Austria and found that innovation co-operation with customers and suppliers positively impacts firm performance.

Research linking open innovation strategies to changes in BMs is limited and such research is mainly limited to private enterprises. Such an analysis is particularly lacking in the realm of public sector. Public sector has sought to leverage the benefits of open innovation strategies mainly due to the successful cases of open innovation in the private sector, and due to the increasing complexity of social “wicked problems” and needs (Ferro, Loukis, Charalabidis, & Osella, 2013; Loukis et al., 2016). Certain differences exist in the way innovation activities are carried out in public and private organizations. For example, innovation in the private sector focuses on new product development while innovation in the public sector is usually not for a physical artefact (Bommert, 2010). Furthermore, innovation in the private sector is intended to achieve competitive advantage and create value in terms of higher revenues. By contrast, innovation in the public sector is directed at improvements in services and processes, and add value in terms of public benefit in view of the ‘public value’ doctrine (Moore, 1995).

Thus, an analysis that links the BM dimensions to open innovation strategies of public sector is important, primarily because of the differences that exist between innovation in the public organizations and in the private organizations. This paper makes a contribution in this direction. The next subsection sheds light on the BMs and the importance of BMs in the public sector.

2.2 Business models and the public sector

Organizations need to adapt their business models to better incorporate open innovation strategies. Business models (BM) are defined as the content, structure, and governance of transactions inside the firm and between the firm and its external partners in support of the company’s creation, delivery and capture of value (Santos, Spector, & der Heyden, 2009; Zott & Amit, 2010). From an organizational perspective, three main dimensions of BMs have been identified. They are: (1) the content of the transactions (the set of activities the company undertakes, e.g. the value proposition), (2) the structure of the transactions (the organizational units or departments that perform those activities and how these units/departments are linked), and (3) governance of the transactions (the mechanisms for controlling the organizational units and the linkages between the units) (Saebi & Foss, 2015; Zott & Amit, 2010).

BM are relevant to all organizations (be it in the private sector or the public sector)(Kaplan, 2011). The BM is important as an effective way of formulating and representing the organization logic behind a particular business or an initiative (Shafer, Smith, & Linder, 2005) whether the organization is for-profit or not-for-profit (Al-Debei, El-Haddadeh, & Avison, 2008). Although profit generation is not a key requirement in the public sector, the need to improve public services and foster new ideas and collaborations is particularly crucial.

Similar to the definition of the BMs in the private sector, public sector BMs involve the definition of product and service offerings, internal functions and external involve define the product and service offerings, internal activities and external partnerships (Janssen et al., 2008; Panagiotopoulos et al., 2012). Thus, public sector BMs describe the ways to deliver added value to citizens in various areas from service delivery to political participation.
Public sector BMs are becoming increasingly relevant because of the changing way that governments are interacting with their citizens. However, how the public sector BMs need to be align with the open innovation paradigm needs to be explored further. This study investigates how open innovation strategies impact the BMs of the public sector.

3 Research context and methods

3.1 Research context

This study focuses on one particular kind of open innovation strategy, namely crowdsourcing. It is an example of an open innovation practice that relies on a diversity of external sources to provide knowledge input to its innovation activities. Here, the diversity of external sources, in terms of diverse backgrounds and skills, ensures a rich breadth of new ideas. Crowdsourcing, enabled by ICTs (Baldwin & Clark, 2000), and low communication costs, allows firms an access to the distributed knowledge of external individuals or communities without resorting to traditional means of backwards or forwards integration (Lakhani, Lifshitz-Assaf, & Tushman, 2012, Pg.6). Situated in the context of outside-in processes, crowdsourcing is an effective open innovation approach as it allows firms to maximize the breadth of external contributors and to reduce transaction costs.

The earliest definition of crowdsourcing was coined by (Howe, 2006, 2008): “Simply defined, Crowdsourcing represents the act of a company or institution taking a function once performed by employees and outsourcing it to an undefined (and generally large) network of people in the form of an open call. This can take the form of peer-production (when the job is performed collaboratively), but is also often undertaken by sole individuals. The crucial prerequisite is the use of the open call format and the wide network of potential labourers”.

While many of the exemplar cases of crowdsourcing highlighted in the scholarly research have been for-profit companies or ventures managed by for-profit companies, crowdsourcing has been influential as a public participation tool for governance and planning, as well as a tool for building common resources or processing large batches of data to streamline government functions (Brabham, 2009, 2013).

Considering this evidence, this paper builds upon the data collected though the PADGETS (“Policy Gadgets Mashing Underlying Group Knowledge in Web 2.0 Media”) project, a three-year STREP action that has been co-founded by European Union in the context of the ‘ICT for Governance and Policy Modelling’ call of the seventh European Framework Program of research (FP7).

The objective of PADGETS was to implement a prototype service for policy makers that utilizes social media technologies and techniques to boost public engagement, enable cross-platform publishing, content tracking and provide decision support. Through the PADGETS platform, policy makers are capable of disseminating their policy messages through multiple social media simultaneously, using a single integrated interface. They are able to reach large user groups in these platforms and collect their feedback, by keeping track of and analysing users’ reactions to the policy message. Thus, PADGETS could be conceived as crowdsourcing model for participatory policy making over social media.

A pilot of this model was implemented in the Piedmont region of Italy. Policy Gadget campaign in Piedmont Region concerned e-Health and, more in details, the extension of remote delivery of healthcare services to regional areas currently unserved or underserved (termed as telemedicine). At the advent of PADGETS project, Piedmont Region policy makers decided to leverage the brand-new crowdsourcing platform to examine the response of the citizenry to implement telehealth services in the entire Piedmont region.
3.2 Data sources

This study adopts an action research methodology. The second and the third author took part in the PADGETS project. Daily engagement with Piedmont policy officers occurred for the overall duration of the project. This involved daily interactions with the policy makers spanning different departments, hierarchies and responsibilities (for example, regional innovation officers, regional institutional communication officers and the head of regional public health department). The policy makers were representatives of the following departments of the regional administration:

- ‘Direzione Innovazione, Ricerca ed Università’, which is the office managing projects about innovation in public policy and the partner in the PADGETS consortium.
- ‘Direzione Sanità’, which manages the provision of healthcare services – on behalf of the national health system – to Piedmontese citizens.
- ‘Comunicazione istituzionale della Giunta regionale – Settore Nuovi Media’, which is the central department of institutional communication managing campaigns and the respective interaction with citizens via new media.

The bulk of data were gathered through PADGETS platform, which could be accessed both by the policy makers and the researchers involved. Other key inputs (i.e., interviews) were collected by the second and third author. The data analysis was done collectively by the four authors. In carrying out this research, the authors played two different roles, both as involved researchers through participant observation and as action researchers. Action research is consistent with the study of work practices in real-life scenarios. Reason & Bradbury (2001, Pg.3) define action research as: “A participatory process concerned with developing practical knowing in the pursuit of worthwhile human purposes. It seeks to bring together action and reflection, theory and practice, in participation with others, in the pursuit of practical solutions to issues of pressing concern to people.”

Action research involves an understanding of the problem, to generate ideas for improvement, but also the practical application of these ideas in real-world settings (Malaurent & Avison, 2016). In addition, action research is concerned, “research in action, rather than research about action” (Coghlan & Brannick, 2014). Thus, action research seeks to combine research and practice, with research informing practice and practice informing research concurrently (Avison et al., 1999).

In fact, researchers observe phenomena, they intervene and participate in the subject under study seeking for resolution of important social or organizational issues together with those who experience these issues directly by joint collaboration within a mutually acceptable ethical framework (Rapoport, 1970). This study leverages the experience gained throughout the PADGETS project through action research – with the aim of contributing both to the practical concerns of people in an immediate problematic situation and to the goals of social science (Rapoport, 1970) – to systematize how crowdsourcing can be fruitfully incorporated into the policy lifecycle.

This study employed the following data sources:

- Textual comments entered by citizens on the three social media platforms employed in the PADGETS project: YouTube, Facebook and Twitter. A total of 321 unique comments were analysed as a part of the project. The textual comments pertained to the opinions on a particular policy and barriers or improvements to consider in formulating a particular telemedicine policy. The respondents included citizens, patients, health care professionals, and doctors.
- Citizens’ responses to a brief web questionnaire. The questionnaire covered aspects such as the technological feasibility of the open innovation platform, benefits and uses of the open innovation strategy (crowdsourcing in our case), the impact of the open innovation practices on the policy formulation processes, internal processes of the governmental agencies, the new capabilities and skills required to adopt this crowdsourcing practices. A total of 42 responses were collected and allowed to complement the voices of policy makers with an evaluation coming from end users.
Finally, a total of four semi-structured interviews were conducted with policy makers representatives from the public health department, communication department and the innovation departments of the Piedmont region. Each interview lasted for about 60 minutes. Key interview themes related to the usefulness of the PADGETS project, the motivations, the changes required to better integrate the PADGETS pilot with the existing systems and the future prospects of the PADGETS campaign.

The policy messages published as a part of the campaign had a far larger reach than the other messages posted in the same period on regional government’s accounts. For example, campaign messages disseminated through the Facebook social media channel had a reach three times larger than others (on average) while, in terms of active engagement, the campaign generated reactions about twenty times more than usual.

In terms of the campaign, the pilot was successful in creating awareness and informing citizens and other stakeholders about a policy message. The statistics available through DSS suggest that policy messages have generated over 28,000 impressions with 11800 unique user accounts generated during the 2-year pilot. In addition, 321 users accounts actively engaged with the policy message. These users generated a story through comments, likes, and public sharing in Facebook; performed actions such as like, dislike, comments and sharing in YouTube; published a tweet using the pre-defined hashtag (i.e., #medPiemonte) as well as users who re-tweet or reply to tweets representing policy messages launched by the campaign initiator in Twitter. A selection of the tweets generated during the campaign is presented in Figure 1 below.

Figure 1. Selection of tweets from the PADGETS campaign with the hashtag #medPiemonte.

### 4  Key findings

We demonstrate that pursuing an open innovation strategy in form of crowdsourcing is likely to affect the public sector’s BM with respect to (1) the content (the set of elemental activities) (2) the structure (the departments involved and the ways in which these units are linked); and (3) governance (the mechanisms for controlling the departments and the linkages between them). The three dimensions are proposed by Saebi & Foss (2015).

#### 4.1 Change in business model content

Business model content relates to the value proposition dimension, which further defines the ways in which an organization along with its suppliers and partners (business actors) create value for its cus-
tomers and for each actor involved (Al-Debei & Avison, 2010; Magretta, 2002; Osterwalder, Pigneur, & Tucci, 2005). Thus, we argue that value proposition is related to customers and partners. In terms of PADGETS, the role of customers and partners basically belonged to citizenry and policy makers. PADGETS involved the conceptualization of a crowdsourcing model for participatory policy making over social media. Thus, the key aims were to elicit needs, gather opinions, and collect a set of innovative solutions. Saebi & Foss (2015) contend that by adopting a crowd-sourcing strategy, the organization offers a user-oriented value proposition that is customised for and co-created by the community of citizens. In PADGETS, the focus was on policy innovation and diffusion of a policy message and consequently, the role of citizens was extended to that of a problem solver. Thus, the value proposition of PADGETS to the citizens involved greater participation of citizens in policy making and formulation, greater attention to feedback and a cost-effective way to engage with the policy makers. A snapshot of the textual comments pertaining to the hashtag

Furthermore, in terms of the public sector, a crowd sourcing practice implies, a value proposition for the policy makers as well. A key value proposition for policy makers and citizens included spreading awareness and building interest around a typical policy (i.e., spreading or commenting the Policy Gadget announcement in social media);

As one of our informants, communication officer of the innovation development department explains, “value proposition of the PADGETS platform may be summarized as follows: to inform the citizenry, to detect persistent puzzlement, to solve nagging conundrums through ad-hoc explanations, and to collect clues that the policy maker may have overlooked”

In other instance, another crucial value proposition of PADGETS platform is identified as the acceptance (i.e., expression of positive and negative judgments about the policy idea under examination) and consultation (i.e., submission of relevant ideas pertaining to the policy issue at stake) of feedback from the citizenry.

As elaborated by another informant, the head of regional public health department stated: “the platform succeeded in managing the interaction with citizens and this has been fundamental to collect high quality feedback from citizens on the policy at stake.”

He further iterated, “the survey component made it possible to grasp some specific issues concerning the telemedicine policy that are of particular usefulness for a fine-grained revision of the policy proposal. A relevant part of those issues was also on focus in social media textual comments: the slew of comments inspired us, policy makers, in hypothesizing some possible solutions to the emerged criticalities”.

Another key value proposition for the policy makers, included the value proposition of the decision support tools that was designed to analyse the vast amount of information and feedback in terms of comments and tweets. The key value proposition of this decision support tool included:

- Information classification, since the tool provides a framework aimed to classify and aggregate data stemming from social engagement in light of an increasing level of stakeholders’ involvement (i.e., awareness, interest, acceptance).
- A reduction of information complexity (e.g., data aggregation, cross-platform data analysis, data projection, and simulation of phenomena in the near future) leading to a well-framed synthesis of heterogeneous inputs.
- A support to emerging governance models, since the DSS enables new ways for collecting, organizing and delivering information at different authority levels (national, regional and local), opening-up on-going governance models and allowing a wider audience to have an impact in the political debate.
4.2 Change in business model structure

Adopting an open innovation strategy affects the structure dimensions of firms’ BM as it requires establishing linkages with external partners. Saebi & Foss (2015) adopt a user centric view of the crowd sourcing strategy. Our study argues that this view needs to be extended to a wide array of actors in the context of public sector. For example, an informant, a regional innovation officer, highlighted the need for better coordination and communication with other departments.

“Besides the Public Health Department, it will be surely precious the contribution provided by the Institutional Communication Department. Its officers will be active in the planning phase of the new campaign as well as in the moderation of the debate. For a successful project, we need a great team!”

Crowd-sourcing as an open innovation strategy aims at the ideation or idea generation phase of the innovation process in order to generate ideas for new product development, to solve a particular problem or to uncover new market trends, and thus Saebi & Foss (2015) highlight that the core innovation processes such as innovation prototyping, development and commercialisation are likely to remain in-house and thus unchanged.

Even though the key innovation processes remain in-house, our study demonstrates that the role of citizens is not restricted to that of idea generators but to that of active problem solvers. The citizens, in their role as problem solvers evolve as a key partner of the public sector’s BM. The feedback provided by citizens in terms of comments and tweets expanded the knowledge base of the public sector. For example, considering the public spending on health issues is a key concern given the budgetary constraints public sector faces, a citizen commented on the social media platform Facebook,

“An example, for regions like mine, Lazio, where more and more frequently-past and present spending reviews are leading to closure of hospitals.”

4.3 Change in business model governance

Certain open innovations strategies may require alterations to the “governance” dimension of the BM, or instance collaborating with external knowledge partners and customers changes the way linkages between different departments are organized within the firm and between the firm and its stakeholders. In the context of public sector, the PADGETS platform communicated with a wide range of heterogeneous citizens’ groups, belonging to different cultures, ascribing to a different set of values and concerns. The PADGETS platform specifically communicated with stakeholders that are not traditionally involved in politics, and explore a wider range of views and opinions concerning a particular policy under discussion.

Owing to this extended interaction with external stakeholders, some informants stressed that a ‘typical public servant’ might initially not feel ‘culturally fit’ for and familiar with the language and style of dialogue in most social media.

As the regional communication officer, commented, “It goes without saying that PADGETS as ‘human seismograph’ relieves the risk of error – owing to the watchful eyes of citizens – and dispel the pervasive image of ‘introvert’ government.”

In some cases, an open innovation paradigm in policy making also implies, being more receptive to harsh and not-so-positive opinions from citizens. This is further, illustrated by a comment from a respondent:

“citizens’ opinion is often harsh: social media campaigns are perceived as mere instrument of ‘political marketing’ rather than as concrete opportunity to listen the voice of the citizenry.”

Saebi & Foss (2015) argue that when an organization implements a crowd-based innovation strategy, its user communities and their interactions with the firm get embedded in company's BM structure, and thus the firm’s BM requires new governance modes. For example, crowd sourcing initiatives need to provide incentives to its own employees to involve them in the initiative. Often, employees in the public sector resist such initiatives out of the fear of losing competencies and responsibilities. Thus, to
entice employee’s and management interest in the innovation as well as to avoid the “not generated in-house attitude”, incentive systems that build on the outcome of the crowd-sourcing activity are crucial (Keinz et al., 2012).

In contrast to the findings of Saebi & Foss (2015), where they propose that some incentive systems or monetary rewards are required to entice employees’ interest in the open innovation, our study highlights the importance of appropriate training and support mechanisms that should be provided to the public sector employees, to better train them to being more receptive to harsh and negative feedback coming from the citizenry. One of our informants, illustrates this view

“Let me say that policy makers need training and, especially, we need a support staff or an external consultant to help us to overcome inertia.”

Saebi & Foss (2015) contend that an important challenge in crowd-sourcing is the vast amount of information that needs to be filtered, organized, and evaluated. Such an activity further requires new organizational capabilities and practices. This is also related to providing sufficient absorptive capacity to integrate external knowledge. Particularly so, as some scholars have argued that absorptive capacity plays a key mediating role between external knowledge sources and innovation (Foss, Lyngsie, & Zahra, 2013; Zahra & George, 2002).

In our case, a tool in the form of decision support system (DSS) was implemented by one of the project partners to better organize and classify the feedback (tweets and comments) generated. This was primarily done to transform and incorporate the external knowledge into the public agency’s existing knowledge base. The DSS tool implemented as a part of the changes to the governance dimension of the BM reinforced the value proposition dimension of the BM. The DSS provided enhanced value to the policy makers by proving them with well-classified information and data. Thus, the governance dimension of the BM reinforced and strengthened the content (value proposition of the BM) by enabling new sources of value proposition to the policy makers.

5 Discussion

Open innovation, a paradigm initially developed for and implemented in the private sector, has been recently implemented in the public sector with the aim to tap into the extensive knowledge of citizens for innovation development in various aspects such as new public policies and services, or improvements of existing ones. Notwithstanding the benefits of open innovation paradigms, there exists significant performance differential among firms. A recent stream of literature attributes this difference in performance to the alignment of the business model elements with the open innovation strategies. Thus, it is important to explore how firms could better align their business models (BMs) with different open innovation strategies. However, such an analysis is restricted to a conceptual study with major focus on the firms that operate in the private sector (Saebi & Foss, 2015).

An analysis that links the open innovation strategies with the business models in the context of public sector is crucial because, first, innovation in public sector is different from that undertaken in the private sector and second, BMs for public sector focus on public value and service delivery while the ones for private firms tend to focus more on profit maximization.

This study provides contributions around this stream of literature. It examines a particular kind of open innovation strategy (crowdsourcing) and identifies how crowdsourcing impacts the content, structure and governance of the public sector BMs and how BMs could be reconfigured to better incorporate crowdsourcing strategy.

Our results indicate that incorporating a crowd-based open innovation strategy is likely to put more emphasis on users as co-creators of value proposition. Hence, the resulting value proposition is the one that is co-created by the customers. Additionally, the focus in the public agency’s BM is on “public value”. The concept of public value provides an interesting backdrop for exploring the various ways in which value may be co-created through the systematic exploitation of crowdsourcing. In the public sector, where stakeholders replace share-holders, there is no single or simple ‘bottom line’ for gauging
success. In a broad sense, the focus on public value is the analogue of the desire to maximize share- 
holder value in the private sector and thus, all governments should seek to maximize “public value” 
(Kelly, Mulgan, & Muers, 2002). Finally, the BM content is also modified in offering value propo- 
sition to other stakeholders as well, such as the policy makers in our case.

In addition, our study also indicates that adopting an open innovation strategy is likely to alter the pub- 
lic agency’s BM structure. For example, it highlights that a better co-ordination and cooperation is 
required among multiple departments. Furthermore, it is also crucial to delineate the involvement of 
different departments and their roles during the innovation development cycle. Additionally, our study 
also highlight that even though that customers/citizens are likely to be involved in the idea generation 
phase in crowdsourcing, citizens emerge as key partners of the public sector BMs.

Finally, it is argued that in adopting a crowd-based innovation strategy the firm should provide mone- 
try rewards or recognition for external knowledge providers (Saebi & Foss, 2015). For instance, in 
the realm of public sector, Challenge.gov is an initiative to crowdsource innovative solutions from the 
public to tackle complex social and technical public management problems and involves the provision 
of monetary and non-monetary rewards to the best solution providers (Desouza, 2012).

Our case presents different findings as no such rewards or recognitions were provided to the external 
knowledge contributors. One reason could be attributed to the motivations that lead external innova- 
tors to contribute in open innovation. Several studies have highlighted that extrinsic and intrinsic mo- 
tivation both encourage users to participate in open innovation processes (Roberts, Hann, & Slaughter, 
2006; Wu, Gerlach, & Young, 2007). Extrinsic motivations include monetary prizes while intrinsic 
motivations include feelings of competence and willingness to help other developers, and social re- 
ponsibility (Lakhani & Von Hippel, 2003). Our study puts emphasis on the role on intrinsic motivations 
to incentivise communities to take part in open innovation processes (Lakhani & Von Hippel, 
2003). Finally, our study also highlights the need to incorporate appropriate training and support 
mechanisms for the employees in the public sector to make them more comfortable in dealing with 
negative and harsh feedbacks.

Finally, our study also highlights the interactions between the BM elements (i.e., content, structure and 
governance). As mentioned earlier, a DSS was implemented to better analyse and capture the amount 
of feedback generated through social media platforms. Firms should be able to integrate valuable ex- 
ternal ideas and assimilate them with their internal knowledge systems (Saug, Sezen, & Güzel, 2016). 
The DSS implemented provided valuable inputs to the policy makers by classifying data across multi- 
ple dimensions and reducing complexity in the information, this in turn reinforced the business model 
content by providing new sources of value proposition to the policy makers. Prior research indicates 
that the existence of skilled researchers contribute to a firm’s increased ability to understand and ab- 
sorb new forms of knowledge, i.e., absorptive capacity (Pilav-Velić & Marjanovic, 2016). In our case, 
the involvement of researchers from external agencies assisted the public agency (health department) 
in building its absorptive capacity.

6 Conclusion

Despite the importance of open innovation in public sector organizations, research on understanding 
the links between open innovation strategies and the public sector BMs has been relatively limited. 
The goal of this study was to elaborate evidence and advance our understanding in this area.

Based on an action research study conducted as a part of the PADGETS project in the Piedmont re- 
gion of Italy, this study proposes how the public agency’s BM could be aligned with the crowd-based 
open innovation strategy along three key BM elements: content, structure and governance.

The findings suggest the importance of co-created public value, citizens as problem solvers and con- 
sequently, key partners, adequate support and training to the employees, and the role of tools such as
DSS to enhance the absorptive capacity of the public sector. Furthermore, incorporating open innovation approaches, the public agencies might abandon their monopoly over the policy process in favour of participatory models that invite input – and ownership – at all stages of development, from problem definition, to analysis, to identifying strategic options and making decisions.

Although we have discussed our contributions in the previous section, this study bears some limitations. One limitation is that our results are only limited to crowd-based open innovation strategy. We did not consider other forms of open innovation strategies and their impact on the BM design. Another limitation is concerning the generalization of the findings. Our findings are limited to our context, that is public sector, telemedicine and Italy. Future research might consider other forms of policy message (those different from e-health) and probably ones that implement other forms of open innovation such as collaborative and network-based innovation strategy.
References


incumbent firms. INSEAD, Fontainebleau, France.