

# Reflection on new research trends

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## ICT-Enabled Innovation in the Public Sector

By Mila Gasco-Hernandez

Open innovation practices and research have only minimally been expanded to the public sector. Interestingly enough, the few works that have focused on this topic have granted technology a key role that expands the benefits of open innovation processes but, also, adds challenges. This article summarizes some of the contributions to the idea of ICT-enabled open innovation to show that further research is still needed to understand the dynamics and contribution of ICT-enabled open innovation to e-governance and public innovation.

Keywords: open innovation, public sector, ICT, public innovation, online platforms, e-governance

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## Open Innovation in the Public Sector

Innovation is a recurring theme in public administration. It has been used to frame the transformation of public sector organizations in order to enhance the effectiveness, efficiency, and legitimacy of their public value creation processes (Bekkers et al., 2011)<sup>1</sup>. As needs of citizens are changing, and technology is advancing, there is an immense need for innovation in the public sector. On one hand, citizens have higher expectations about public services and government interventions. On the other, public managers and elected politicians have growing ambitions concerning improved public governance mechanisms and tighter control. Finally, public tasks have become more and more complex and have developed into “tangled problems” or even “wicked problems” – problems that are often too difficult to be solved by a single entity or include many different layers of complexity (Sørensen & Torfing, 2011 & 2010)<sup>2,3</sup>.

Recently, government organizations have started to adopt open innovation approaches to provide an additional gateway for innovation creation that allows citizens to suggest solutions to public management problems (Mergel, 2015)<sup>4</sup>.

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<sup>1</sup> Linking Innovation to the Public Sector: Contexts, Concepts and Challenges”. Victor Bekkers, Jurian Edelenbos, J. and Bram Steijn,. In VJJM Bekkers, J. Edelenbos & B. Steijn (Eds.). *Innovation in the public sector. Linking capacity and leadership* (Governance and Public Management, 6). Palgrave MacMillan, pp. 3-34, 2011.

<sup>2</sup> Enhancing Collaborative Innovation in the Public Sector. Eva Sørensen and Jacob Torfing. *Administration and Society*, 43(8), 842-868, 2011.

<sup>3</sup> Collaborative Innovation in the Public Sector: An Analytical Framework. Eva Sørensen and Jacob Torfing. Working paper no. 1/2010. Working Paper Series: Studies in Collaborative Innovation, 2010.

<sup>4</sup> Opening Government. Designing Open Innovation Processes to Collaborate with External Problem Solvers. Ines Mergel. *Social Science Computer Review*, 33(5), 599-612, 2015.

Open innovation is a concept that first appeared in the private sector. According to Chesbrough (2006)<sup>5</sup>, it has to do with “the use of purposive inflows and outflows of knowledge to accelerate internal innovation, and expand the markets for external use of innovation, respectively” (p. 1). Open innovation is, therefore, about inviting problem solvers help reinvent products, services, or even business models that might contribute to the survival of the organization (Chesbrough, 2006 & 2003)<sup>67</sup>.

However, open innovation practices and research have only minimally been expanded to the public sector (Mergel, 2017)<sup>8</sup>. The few works that have focused on this topic have mainly addressed one main question: how can a successful private sector practice be introduced in public sector organizations? They have analyzed drivers of adoption, the implementation process, the role of agents, and results and impact (among other, Gascó, 2016<sup>9</sup>; Mergel, 2015<sup>10</sup>; Bakici et al., 2013<sup>11</sup>; Mergel & Desouza, 2013<sup>12</sup>; Lee et al., 2012<sup>13</sup>). Despite these works, how open innovation can become a true and effective tool for governments is still an underexplored topic (Mergel, 2017<sup>14</sup> & 2015<sup>15</sup>, Bakici et al., 2013<sup>16</sup>; Feller et al., 2011<sup>17</sup>).

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<sup>5</sup> Open Innovation: The New Imperative from Creating and Profiting from Technology. Henry Chesbrough. Harvard Business School Press, 2006.

<sup>6</sup> Open Innovation: The New Imperative from Creating and Profiting from Technology. Harvard Business School Press, 2006.

<sup>7</sup> The era of Open Innovation. Henry Chesbrough. MIT Sloan Management Review, 44(3), 35-41, 2003.

<sup>8</sup> Open Innovation in the Public Sector: Drivers and Barriers for the Adoption of Challenge.gov”. Ines Mergel. Public Management Review, published online, 2017.

<sup>9</sup> Living Labs: Implementing Open Innovation in the Public Sector. Mila Gasco-Hernandez. Government Information Quarterly, 34(1), 90-98, 2016.

<sup>10</sup> Opening Government. Designing Open Innovation Processes to Collaborate with External Problem Solvers. Ines Mergel. Social Science Computer Review, 33(5), 599-612, 2015.

<sup>11</sup> The Role of Public Open Innovation Intermediaries in Local Government and the Public Sector”. Tuba Bakici, Esteve Almirall and Jonathan Wareham. Technology Analysis & Strategic Management, 25(3), 311-327, 2013.

<sup>12</sup> Implementing Open Innovation in the Public Sector: The case of Challenge.gov”. Ines Mergel and Kevin Desouza. Public Administration Review, 73(6): 882-890, 2013.

<sup>13</sup> Open Innovation in the Public Sector of Leading Countries. Sang Lee, Taewon Hwang and Donghyun Choi. Management Decision, 50(1), 147-162, 2012.

<sup>14</sup> Open Innovation in the Public Sector: Drivers and Barriers for the Adoption of Challenge.gov”. Ines Mergel. Public Management Review, published online, 2017.

<sup>15</sup> Opening Government. Designing Open Innovation Processes to Collaborate with External Problem Solvers. Ines Mergel. Social Science Computer Review, 33(5), 599-612, 2015.

<sup>16</sup> The Role of Public Open Innovation Intermediaries in Local Government and the Public Sector”. Tuba Bakici, Esteve Almirall and Jonathan Wareham. Technology Analysis & Strategic Management, 25(3), 311-327, 2013.

<sup>17</sup> Open Innovation and Public Administration: Transformational Typologies and Business Model Impacts”. Joseph Feller, Patrick Finnegan and Olof Nilsson. European Journal of Information Systems, 20, 358-374, 2011.

## Using Information and Communication Technologies in Open Innovation Processes

Interestingly enough, Information and Communication Technologies (ICT) are at the core of open innovation processes: through ICT platforms, previously untapped problem solvers are actively involved in decision-making in order to increase political awareness, tackle social problems and increase the trust between government and citizens (Mergel & Desouza, 2013)<sup>18</sup>. In doing so, public organizations search for solutions outside their institutional boundaries. One of the most popular initiatives in this respect is Challenge.gov (<https://www.challenge.gov/>), a technical platform and listing of challenge and prize competitions, all of which are run by more than 100 agencies across federal government. These problem-solving events include idea, creative, technical and scientific competitions in which U.S. federal agencies invite the public's help to solve perplexing mission-centric problems. Challenge.gov was born in 2010 and was part of the Digital Government Strategy of the U. S. federal government.

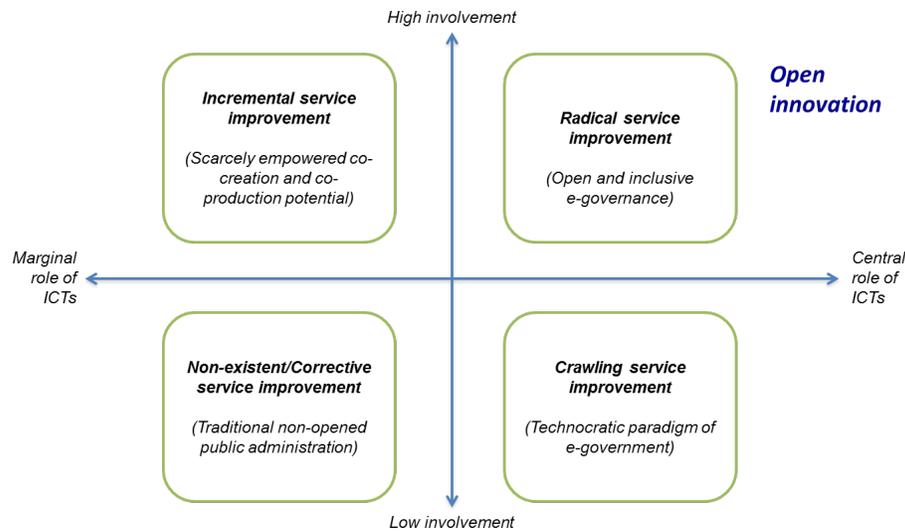
According to Mergel (2017)<sup>19</sup>, ICT-enabled open innovation may be considered an innovative e-governance practice. Cuccinello & Nasi (2015)<sup>20</sup> further conceptualize this idea and the difference between online open innovation and other ICT-intensive processes within the public sector. In their work, the authors start by recognizing that online platforms and fora may be used to invite citizens and other stakeholders to submit their ideas and suggestions, which can be then further developed. In addition, they establish different typologies of public service delivery according to two variables: the degree of active involvement of external stakeholders (that is, to which extent external stakeholders are enabled to engage in public innovation processes) and the role played by ICT in public organizations (which can be marginal or central in supporting public innovation processes). Crossing these two variables results in:

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<sup>18</sup> Implementing Open Innovation in the Public Sector: The case of Challenge.gov". Ines Mergel and Kevin Desouza. *Public Administration Review*, 73(6): 882-890, 2013.

<sup>19</sup> Open Innovation in the Public Sector: Drivers and Barriers for the Adoption of Challenge.gov". Ines Mergel. *Public Management Review*, published online, 2017.

<sup>20</sup> Making sense of Co-Creation and Co-Production of Public Services: Theoretical Perspective and Empirical Applications. Maria Cucciniello and Greta Nasi. *E-Government Symposium. 48th Hawaii International Conference on System Sciences*, January, 2015.



In sum, the graph above shows that open innovation require the active involvement of external stakeholders, empowered through ICT tools.

Despite their potential benefits, such as increasing awareness of changes in policy, reaching otherwise disconnected parts of the population, and increasing the quality of public services, implementing open innovation processes through online platforms is not easy. In their study of Challenge.gov, Mergel & Desouza (2013)<sup>21</sup> and Mergel (2017)<sup>22</sup> stated that barriers for the adoption of online open innovation approaches include legal barriers, uncertainty about the process and its outcomes, technological barriers to design crowdsourcing processes, and most importantly cultural factors that prevent or delay the adoption decisions. However, the authors also show that challenges can be both internal and external. Examples of the latter are the expectations that the stakeholders have about their participation in the open innovation processes as well as their perceptions and feelings of ownership. Recognizing the existence of external barriers is important because these are out of the control of a single agency and, still, can make a difference in how governments adopt and implement decisions related to a technological innovation. In sum, the existence of such barriers show the complexities of adopting new technologies by governments (Mergel, 2017)<sup>23</sup>.

## Conclusion

Given the relevance of ICT and online platforms in open innovation initiatives, additional research is still needed to understand adoption and implementation of ICT-enabled open innovation practices, but, also, to assess results and impact both in terms of short-term innovation products and long-term changes in the organization. Further understanding of

<sup>21</sup> Implementing Open Innovation in the Public Sector: The case of Challenge.gov”. Ines Mergel and Kevin Desouza. *Public Administration Review*, 73(6): 882-890, 2013.

<sup>22</sup> Open Innovation in the Public Sector: Drivers and Barriers for the Adoption of Challenge.gov”. Ines Mergel. *Public Management Review*, published online, 2017.

<sup>23</sup> Open Innovation in the Public Sector: Drivers and Barriers for the Adoption of Challenge.gov”. Ines Mergel. *Public Management Review*, published online, 2017.

how government organizations perceive the challenges of this new e-governance instrument, what factors foster implementation of open innovation, and how bureaucracies, confronted with new knowledge they were not aware of, are absorbing the resulting innovations is still needed for the development of a theory of open innovation in the public sector that has ICT at its core.

Thus, a research agenda on ICT-enabled open innovation in the public sector could aim at answering the following research questions:

1. How are open innovation processes designed in the public sector?
2. How do process design features vary across open innovation initiatives?
3. What are the barriers and drivers of open innovation processes in the public sector?
4. What role does technology play in open innovation processes?
5. What is the role that public managers play in the implementation process of open innovation initiatives?
6. What are the innovation outcomes of open innovation processes?
7. How are government organizations absorbing the resulting innovations?

Research leading to answering these questions is a legitimate and interesting task to undertake to understand the dynamics and contribution of ICT-enabled open innovation to e-governance and public innovation.