Public Innovation: Concept and Future Research Agenda

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Abstract. The complexity and uncertainty that increasingly characterize public issues in contemporary societies indicate the relevance of public innovation, which designates a collection of approaches for exploring, testing and validating new ideas that create added value for society. Despite its relevance, studies are still needed to go further in analyzing the literature built on the subject, and to identify new research agendas that can generate inputs to translate theories into practice. Hence, the purpose of this article is to analyze the concept of public innovation and establish a future research agenda about the topic, on the basis of a systematic literature review of documents published between 2004 and 2018 in the Web of Science® multi-disciplinary database. For this purpose, the data mining software Vantage Point® and the qualitative analysis software MAXQDA® were used to study 148 documents. The results show the need to deepen the construction of public innovation theory from the perspective of the actors who interact in its dynamics. Finally, from the methodological perspective, it was found relevant to study the topic using a triangulation of methods, and through developing longitudinal and comparative studies, in order to understand the conditioning factors and results of the network collaboration exercises implicit in public innovation processes.

Keywords: Public innovation · Trends · Systematic literature review · Research agenda

1 Introduction

Social problems are frequently multi-dimensional and with low structuring, not sensitive to segmented treatments, and integrate complex cause-effect relationships. The implementation of public policies involves mobilizing interventions in response to issues which, in general, do not have shared definitions, involve a plurality of actors

L. Uden et al. (Eds.): KMO 2019, CCIS 1027, pp. 165–177, 2019.
https://doi.org/10.1007/978-3-030-21451-7_14

with particular perceptions and aspirations, and at the same time, imply the interaction of multiple and complex dynamics [1]. Public innovation becomes relevant in response to these challenges [2]. Innovation has been considered as a key factor for private businesses [3], understood as a dynamic process in which problems are defined, new ideas are developed, and solutions are selected and implemented [4]. Some studies have analyzed the differences between the private sector and the public sector in terms of their innovation capability, proposing that innovation capability is more developed in the private sector since it is driven by competition. In contrast, public organizations could be less innovative, because the nature of their work dynamics makes them reluctant to take risks [5, 6]. The challenges of public sector innovation can also be related with a limited understanding of the dynamics of innovation in public organizations [7]. Public innovation is tied with the diversity of objectives and results expected from the public sector: providing high-quality services to people, encouraging the innovation capabilities of the private sector, guaranteeing public values such as democracy, trust and safety [8], and responding to multiple and complex social challenges [9, 10]. Within these dynamics, public innovation becomes a possibility to break public policy deadlocks, reduce their costs and improve services for the benefit of citizens and other stakeholders [11–14]. In the literature, a growing interest in the measurement and evaluation of public innovation has arisen, to understand its contribution for improving the efficiency of the public sector and the quality of its services [15]. However, some authors argue that although there are gaps in the measurement of public innovation, first it is necessary to understand the concept [16, 17], achieve a deep comprehension of how it has been developed over time and what factors promote or hinder it [6, 18–20]. As Liddle [21] points out, the urgency of measurement has often left aside addressing the more fundamental question: What is public innovation? and perhaps more importantly, why should the public sector innovate? [22].

The field of public innovation still requires more research to deepen the conceptualization of the topic from an integrative vision [23–25] that articulates preceding research literature, to avoid considering it a "magical concept" or a mere trend [26]. For this reason, more studies are needed to both to understand public innovation and to generate critical stances to the public innovation strategies on which many governments have embarked [27, 28]. Accordingly, the purpose of this research is to analyze research trends about public innovation, to deepen the knowledge of the concept and establish an agenda for future research in this field. A systematic review of the literature published between 2004 and 2018 in the multi-disciplinary database Web of Science® was carried out to make a theoretical contribution to the comprehension of Public Innovation. It also pretends to make a methodological contribution through the rigorous documentation of a systematic literature review, integrating cutting-edge tools for the analysis of research trends over a field of study, in order to become a reference for future research. The paper starts with a description of the methodological structure of the research [29]. Subsequently, the results of the review process are synthesized in three sections: (1) an analysis of research trends on the topic; (2) the contributions of the reviewed literature about the topic in a timeline; and finally, (3) the definition of a research agenda on the basis of the gaps identified in the analyzed documents. Lastly, the implications of the findings are discussed.

2 Methodology

A literature review is defined by Onwuegbuzie, Bustamante and Nelson [30] as the interpretation of a selected set of documents published about a specific topic. Fink [31] considers a literature review to be a systematic and reproducible method to identify, evaluate and synthesize research work in a particular area. In this study, a systematic literature review was conducted with the aim of developing a conceptual consolidation in a fragmented field of study. The three-phase methodology proposed by Tranfield, Denyer and Smart [29] was followed:

2.1 Planning

In this phase, the research purpose was defined and the information sources were identified. The purpose was to identify research trends, analyze convergences and divergences about the concept of Public Innovation, and establish a research agenda. The search was limited to documents from peer-reviewed journals, considering the suggestion of some authors [32] regarding validity and potential greater impact in the field of study. Specifically, the Web of Science database was selected under the premise of being considered one of the most complete databases of peer-reviewed journals in the social sciences [33]. It includes over 20,000 multi-disciplinary, peer-reviewed, high-quality scholarly journals published worldwide [34]. Finally, a quality criterion in the filtering process was established: the inclusion of documents that contribute to explore how the concept of Public Innovation reflects in the practice.

2.2 Development

The second phase was structured in five stages. In the *first stage*, the search equation applied in the Web of Science database includes "public innovation" as a keyword in the "Topic" field. All available years were included (2004–2018/November) and all languages. With this search equation, a total of 148 documents were obtained. In the *second stage*, the 148 documents were analyzed using the data mining software VantagePoint®. In the *third stage*, the following aspects about the field of study were identified: publication dynamic by countries, publication dynamic by authors, and correlation between research topics related with public innovation. In the *fourth stage*, a reading of the titles and abstracts of the 148 resulting documents was done in order to verify compliance of the quality criterion described above; as a result, 62 documents were selected. In the *fifth stage*, a complete reading and coding of the 62 documents was done using the qualitative analysis software MAXQDA®. As a result, 58 documents were added to the sample by snowball, leaving as a result 120 documents that were analyzed (See Fig. 1).

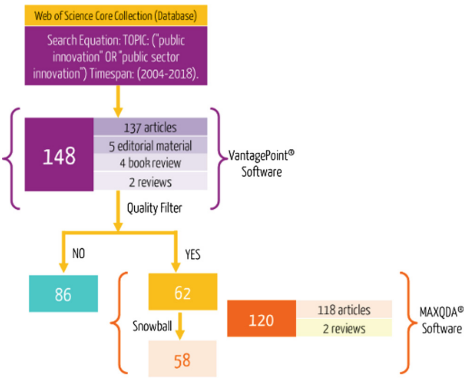

Fig. 1. Systematic literature review process. Source: Authors

2.3 Reporting Research Findings

During the reading process of the 120 articles resulting from the methodological stages described above, five analytical categories were designed to codify the information: (1) definition, (2) timeline, (3) concept relevance, (4) conceptual gaps and (5) methodological gaps.

3 Results

3.1 Descriptive Analysis of the Public Innovation Field

Since 2004, there has been an annual growing trend in publications about Public Innovation (See Fig. 2). The three most cited documents published in 2015 were focused on analysis from a theoretical perspective [35] and the practice of public innovation processes [36], from a collaborative perspective among networks [37]. The analysis of the publication dynamic by country (Fig. 3), found that Denmark is the country in which the highest number of documents during the studied period was

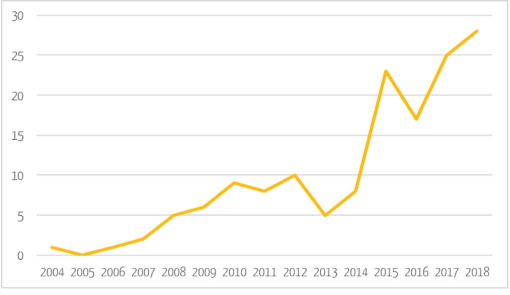

Fig. 2. Growth of articles about public innovation in the Web of Science database. *Value for 2018 was estimated based on data up to 14/11/2018.

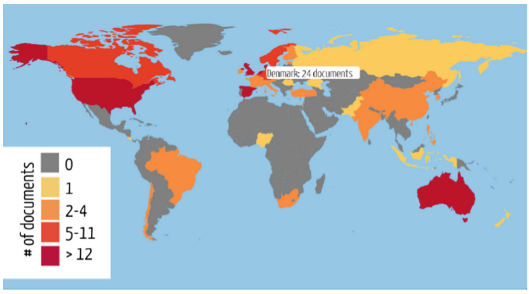

Fig. 3. Publication dynamic in the public innovation field -by country

published, followed by Australia, the United States and Spain. The most cited documents generated in Denmark were oriented towards the analysis of collaborative networks for public innovation [38, 39], and the study of sustainability strategies for innovation initiatives in the public sector [40].

The most outstanding author is Professor Eva Sørensen from Roskilde University, Denmark. Her publications have appeared almost uninterruptedly from 2011 to 2018. Her main topics of interest in the knowledge field are: collaborative governance with emphasis on multiple actors [39, 41], the analysis of the proliferation of governance networks and their relationship with the growing demand for public innovation [38, 42, 43], the study of key drivers for political innovation [38, 44], and the need for innovations in polity, politics and policy [45]. Another prominent author is professor Jacob Torfing, who has published books in the field of Public Innovation [46–48], and contributed to the study of the generation of public value through governance networks [49].

The journal with the greatest interest in the topic is *Public Management Review* of the United Kingdom (12 publications), with an emphasis on documents that explore the development of the public management field and that study the governance of intersectoral relationships. The next outstanding journal is *Research Policy* of the Netherlands (8 publications), with a focus on articles that examine, empirically and theoretically, the interaction between innovation and economic, social, political and organizational processes [51]. Last among the three most featured journals in the field is the *International Review of Administrative Science* of the United States (6 publications), which focuses on comparative analysis, seeking to shape the future agenda of public administration.

Finally, research topics associated with the study of Public Innovation were analyzed. Figure 4 shows the keywords repeated at least five times in the documents analyzed (established criterion for visibility effects). In this co-relation map, the number in parenthesis indicates the number of documents about this topic, and the blue bubbles show the relationships between topics. In synthesis, the study of public innovation has been focused on the analysis of drivers that make this concept a reality in practice (21 publications), the study of instruments such as public innovation laboratories (13 publications) which promote collaboration strategies between actors (13 publications), the understanding of governance in the implementation of innovation initiatives in the public sector (11 publications), emphasizing the implicit dynamics of network

governance (11 publications), and the analysis of government's challenges in the development of strategies to promote open innovation (9 publications).

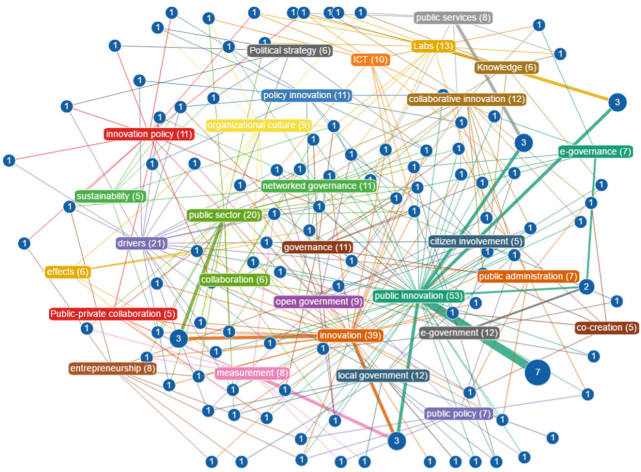

Fig. 4. Correlation between key topics in the public innovation field

3.2 Understanding the Concept of Public Innovation

In order to structure a definition of Public Innovation in a timeline, the three phases in which intellectual development about the topic is divided will be considered as a reference [38, 52], as well as the authors' analysis in the systematic literature review process: (1) *competitive innovation: the Schumpeterian period* [53]; (2) *innovation through systems: the autochthonous-theory period*; and finally, (3) *collaborative innovation*.

In the *first phase,* we find Schumpeter's contributions [3, 54], which studied the innovation of products and processes within private companies, defining innovation as the production of something new, or doing things in a different way. In 1977, Pierce and Delibes's [55] approaches consider that the concept of innovation is influenced by the context. Thompson points to the need for innovation capability to be developed from a business perspective as well as from a government perspective [56]. Although it is unclear when academic researchers began to systematically examine public sector innovation, for some authors Roessner's study "*Incentives to innovate in public and private organizations*" [57] could be regarded as the first study that directly examined the concept of innovation in the public sector. In 1984, Kingdon [58] proposes that innovation implies a deliberate attempt to change, understanding it as a mixture of intentional and non-intentional results [59]. In the following year, Porter's [60] study was published, arguing that innovation is a source of competitive advantage. Consistent with this approach, Damanpour [61] defines innovation as the implementation of an idea related to a device, system, process, policy, program or service, new to the context of implementation. In 1990, Cohen and Levinthal [62] argued that the main

contribution of innovation to the organizational context is the improvement of the capability to recognize the value of new ideas, assimilate them and apply them [63]. However, according to Rodgers [64, 65], the fact that innovation implies novelty does not necessarily mean that it implies invention [66]. Some authors from the 1990 s [67, 68], as well as from the more recent literature [40, 69], agree in four criteria to differentiate public innovation from other change processes in the sector: (1) it must generate an impact in terms of social development; (2) it must be repeated, not just a point-like initiative [70, 71]; (3) it must represent significant or radical changes; and (4) it must be intentional [17]. For some authors [5, 72–74], in the 1990 s, with the growing attention to public management, literature about innovation in this sector expanded rapidly and the concept was integrated not only in research perspectives but as a rhetorical element of public life, as part of modernizing proposals in different parts of the world [75].

The emergence of monopoly capitalism shifted the focus from the individual businessman to the analysis of cooperative business initiatives. For this reason, in the *second phase*, the concept of public innovation was focused on inter-organizational collaboration between actors [76, 77]. In this phase, the importance of analyzing the innovation potential of regions and industrial groups was highlighted [78]. Likewise, literature on public innovation since 2000 moves away from a focus on the private sector, proposing new conceptualizations to respond to public sector realities [25, 79–84]. In this sense, some authors [85] have described public innovation as a "magical" concept. To point out the need for clarification, Cunningham and Kempling [86] add that public sector innovation is typically addressed to improved performance and public benefits, rather than the exclusive generation of competitive advantages. In conclusion, in this phase, public sector innovation was understood as the process of adopting ideas [87] and organizational practices that are new for a public organization [88] and add value to society [26, 89].

Finally, the *third phase* evidences a growing interest on how collaborative interaction can encourage public innovation [90]. According to this group of authors [38, 47], public innovation is the result of collaboration [5, 35, 41, 46], defining it as a "collective effort" to generate public value [39]. Public innovation is understood as the attempt to improve public administration in order to make it more efficient, equitable, receptive, integrated, innovative and democratic [91, 92]. For Bekkers, Edelenbos and Steijn [93], public innovation is defined as a learning or search process in which governments attempt to face social challenges. The term "attempt" [16] is important here, because it signals that innovation involves potential failure.

3.3 Future Research Agenda

There is agreement in the literature that innovation requires novelty and implementation, but there are divergences on the level of novelty required, and on the specific types of innovation found in the public sector [19]. This shows the need for the construction of typologies about the concept. A solid and shared comprehension of what innovation is in the public sector, and how this sector perceives it, is vital both for research on the characteristics of public sector innovation and for the development of measurement models [40]. Specifically, more analysis is needed to understand what is

the relationship between public governance and public innovation? [94]. It is here where the need to deepen the analysis of new interactions between government and society becomes increasingly relevant [95], in order to respond to so-called *wicked problems*. It may be useful to understand these relationships by using the approaches generated under the vision of Network Governance. For Ojasalo and Kauppinen [96], carrying out scientific research is relevant, as well as developing pilot tests to analyze new governance schemes in the context of collaborative innovation. Under the above premises, more research is required to propose approaches and scenarios for the implementation of open innovation platforms and mechanisms that facilitate collaboration. Although there are previous studies developed with this aim [97], there is still not enough research that specifically refers to laboratories as intermediaries for open innovation [98].

In summary, the future research agenda on the topic should contribute to the analysis of drivers [99], values, barriers [100], results, impacts, mechanisms, types and phases [72] related with processes of public innovation [2], emphasizing a deep understanding of contextual elements that support these processes. The literature review carried out indicates that research efforts are still needed to contribute to the development of indicators and reference frameworks to measure innovation [16, 40]. From the methodological perspective, is necessary to go deeper in three dimensions: (1) greater variety in methods: moving from a qualitative domain to mixed methods [25]; (2) the development of theory by analyzing the relationship of interdependence between *polity, politics and policy* [45], generating empirical tests about theoretical constructions; and lastly, (3) more transnational studies. Finally, more evidence about the results of public innovation must be provided from an empirical perspective, integrating longitudinal approaches [6].

4 Discussion and Conclusions

The study of public innovation is a growing topic of interest, from the perspective of research as well as practice. However, as this systematic review has shown, research on the topic is fragmented, and there are still theoretical as well as methodological gaps. The main contribution of this research, from a theoretical perspective, is the consolidation of a great body of knowledge about public innovation from a parsimonious vision. This allows future researchers interested in the topic to devote themselves to the specific gaps identified in the literature and generate contributions relevant to the field of study. The second contribution is the application of a rigorous and transparent review methodology, in which the field of knowledge was analyzed descriptively.

In synthesis, regarding the concept of public innovation, it was found that contributions in the literature on the topic can be divided in three groups: authors interested in the analysis of innovation from a competitive perspective; authors who contribute to the analysis if innovation through a systems perspective, separating the scope of innovation in the private and public sectors; and finally, in the most recent literature, an open debate on the challenges for collaborative innovation among multiple actors. Finally, gaps in the literature that create opportunities for research can be highlighted, in three dimensions. (1) From the theoretical perspective, there is a need to better

understand the concept, which implies contrasting the literature with the contributions of public sector actors and making a rigorous analysis of the drivers, values, barriers, results, impacts, mechanisms, types and phases of public innovation processes, as well as deepening the understanding of new structures for network governance that may be integrated in collaborative innovation processes. (2) From the methodological perspective, it is important to develop more multi-method research approaches that can combine empirical, longitudinal and cross-country comparative studies, in order to explore the validity of particular case studies and reveal deeper patterns in the field. (3) Finally, more efforts need to be carried out to understand the interface between research about public innovation and its practice in both local and global contexts, in order to identify feedback loops that may contribute to the future development of the field.

References

1. Martínez-Nogueira, R.: La coherencia y la coordinación de las políticas públicas. Aspectos conceptuales y experiencias. Documento Final del Proyecto" Modernización del Estado", en el marco del Préstamo BIRF (2008)
2. Agolla, J., Van, L., Burger, J.: An empirical investigation into innovation drivers and barriers in public sector organizations. Int. J. Innov. Sci. **8**(4), 404–422 (2016)
3. Schumpeter, J.: The Theory of Economic Development. Harvard University Press, Cambridge (1934)
4. Sørensen, E., Torfing, J.: Collaborative innovation in the public sector. Innov. J. Public Sect. Innov. J. **17**(1), 1–14 (2012)
5. Hartley, J.: Innovation in governance and public services: past and present. Public Money Manage. **25**(1), 27–34 (2005)
6. Lewis, J.M., Ricard, L., Klijn, E.: How innovation drivers, networking and leadership shape public sector innovation capacity. Int. Rev. Adm. Sci. **84**(2), 288–307 (2017)
7. Demircioglu, M., Audretsch, D.: Conditions for innovation in public sector organizations. Res. Pol. **46**(9), 1681–1691 (2017)
8. Kelly, G., Mulgan, G. and Muers, S.: Creating Public Value: An Analytical Framework for Public Service Reform (Strategy Unit, Cabinet Office) (2002)
9. Mazzucato, M.: Financing innovation: creative destruction vs. destructive creation. Ind. Corp. Change **22**(4), 851–867 (2013)
10. Cels, S., de Jong, J., Nauta, F.: Agents of Change: Strategies and Tactics for Social Innovation (2012)
11. Valdivia, V.A., Ramírez-Alujas, Á.V.: Innovación en el sector público chileno: la experiencia y aprendizajes del laboratorio de gobierno. Revista de Gestión Pública **6**(1), 43–80 (2017)
12. Aschhoff, B., Sofka, W.: Innovation on demand—Can public procurement drive market success of innovations? Res. Policy **38**(8), 1235–1247 (2009)
13. Edler, J., Georghiou, L.: Public procurement and innovation—resurrecting the demand side. Res. Policy **36**(7), 949–963 (2007)
14. Damanpour, F., Schneider, M.: Characteristics of innovation and innovation adoption in public organizations: assessing the role of managers. J. public Adm. Res. Theory **19**(3), 495–522 (2008)

15. Rolfstam, M.: Public procurement as an innovation policy tool: the role of institutions. Sci. Public Policy **36**(5), 349–360 (2009)
16. Arundel, A., Huber, D.: From too little to too much innovation? Issues in measuring innovation in the public sector. Struct. Change Econ. Dyn. **27**, 146–159 (2013)
17. Bugge, M., Bloch, C.: Between bricolage and breakthroughs—framing the many faces of public sector innovation. Publ. Money Manag. **36**(4), 281–288 (2016)
18. Bloch, C., Bugge, M.: Public sector innovation—from theory to measurement. Struct. Change Econ. Dyn. **27**, 133–145 (2013)
19. Torugsa, N., Arundel, A.: Complexity of innovation in the public sector: a workgroup-level analysis of related factors and outcomes. Public Manage. Rev. **18**(3), 392–416 (2016)
20. Dosi, G.: Sources, procedures, and microeconomic effects of innovation. J. Econ. Lit. **26**, 1120–1171 (1988)
21. Nelson, R., Winter, S.: The Schumpeterian tradeoff revisited. Am. Econ. Rev. **72**(1), 114–132 (1982)
22. Liddle, J.: Innovation in the public sector: linking capacity and leadership-edited by Victor Bekkers, Jurian Edelenbos and Bram Steijn. Public Adm. **91**(2), 511–513 (2013)
23. Stewart Weeks, M., Kastelle, T.: Innovation in the public sector. Aust. J. Public Adm. **74**(1), 63–72 (2015)
24. Mulgan, G., Albury, D.: Innovation in the Public Sector. Strategy Unit, Cabinet Office, vol. 1, p. 40 (2003)
25. De Vries, H., Bekkers, V.J.J.M., Tummers, L.: Innovation in the public sector: a systematic review and future research agenda. Public Adm. **94**(1), 146–166 (2016)
26. Agolla, J., Van, L., Burger, J.: Public sector innovation drivers: a process model. J. Social Sci. **34**(2), 165–176 (2013)
27. Pollitt, C.: Innovation in the public sector: an introductory overview. In: Bekkers, V., Edelenbos, J., Steijn, B. (eds.) Innovation in the public sector, pp. 35–43. Palgrave Macmillan, London (2011). https://doi.org/10.1057/9780230307520_2
28. De Vries, H., Tummers, L., Bekkers, V.: A stakeholder perspective on public sector innovation: why position matters. Int. Rev. Adm. Sci. **84**(2), 269–287 (2017)
29. Tranfield, D., Denyer, D., Smart, P.: Towards a methodology for developing evidence-informed management knowledge by means of systematic review. Br. J. Manag. **14**(3), 207–222 (2003)
30. Onwuegbuzie, A., Bustamante, R., Nelson, J.: Mixed research as a tool for developing quantitative instruments. J. Mixed Methods Res. **4**(1), 56–78 (2010)
31. Fink, A.: Conducting research literature reviews, 4th edn, p. 257p. Sage Publications Inc., California (2013)
32. Podsakoff, P., et al.: The influence of management journals in the 1980 s and 1990s. Strateg. Manage. J. **26**(5), 473–488 (2005)
33. Crossan, M., Apaydin, M.: A multi-dimensional framework of organizational innovation: a systematic review of the literature. J. Manage. Stud. **47**(6), 1154–1191 (2010)
34. Clarivate Analytics. Platform Web of Science: Introduction (2018). http://clarivate.libguides.com/webofscienceplatform. Accessed 14 Nov 2018
35. Voorberg, W., Bekkers, V., Tummers, L.: A systematic review of co-creation and co-production: embarking on the social innovation journey. Public Manage. Rev. **17**(9), 1333–1357 (2015)
36. Arundel, A., Casali, L., Hollanders, H.: How European public sector agencies innovate: the use of bottom-up, policy-dependent and knowledge-scanning innovation methods. Res. Policy **44**(7), 1271–1282 (2015)
37. Veeckman, C., Van Der Graaf, S.: The city as living laboratory: empowering citizens with the citadel toolkit. Technol. Innov. Manag. Rev. **5**(3), 6–17 (2015)

38. Sørensen, E., Torfing, J.: Enhancing collaborative innovation in the public sector. Adm. Society **43**(8), 842–868 (2011)
39. Hartley, J., Sørensen, E., Torfing, J.: Collaborative innovation: a viable alternative to market competition and organizational entrepreneurship. Public Adm. Rev. **73**(6), 821–830 (2013)
40. Fuglsang, L., Sørensen, F.: The balance between bricolage and innovation: management dilemmas in sustainable public innovation. Serv. Ind. J. **31**(4), 581–595 (2011)
41. Sørensen, E., Torfing, J.: Co-initiation of collaborative innovation in urban spaces. Urban Aff. Rev. **54**(2), 388–418 (2018)
42. Sørensen, E., Torfing, J.: Metagoverning collaborative innovation in governance networks. Am. Rev. Public Adm. **47**(7), 826–839 (2017)
43. Sørensen, E.: Enhancing policy innovation by redesigning representative democracy. Policy Polit. **44**(2), 155–170 (2016)
44. Agger, A., Sørensen, E.: Managing collaborative innovation in public bureaucracies. Plan. Theory **17**(1), 53–73 (2018)
45. Sørensen, E.: Political innovations: innovations in political institutions, processes and outputs. Publ. Manag. Rev. 1–19 (2017)
46. Torfing, J.: Collaborative Innovation in the Public Sector. Georgetown University Press, Washington (2016)
47. Hartley, J.: Innovation in governance and public service: past and present. Publ. Money Manag. **25**(1), 27–34 (2005)
48. Torfing, J., et al.: Interactive Governance: Advancing the Paradigm. Oxford University Press on Demand (2012)
49. Crosby, B.C., Thart, P., Torfing, J.: Public value creation through collaborative innovation. Public Manage. Rev. **19**(5), 655–669 (2017)
50. Elsevier (2018). https://www.journals.elsevier.com/research-policy/. Accessed 15 Nov 2018
51. SAGE Publishing (2018). https://us.sagepub.com/en-us/sam/journal/international-review-administrative-sciences#aims-and-scope. Accessed 15 Nov 2018
52. Kattel, R.: What would Max Weber say about public-sector innovation? J. Public Adm. Policy **8**(1), 9–19 (2015)
53. Schumpeter, J.A.: Th eorie der wirtschaft lichen Entwicklung. Duncker & Humblot, Berlin (1912)
54. Schumpeter, J.: Capitalism, Socialism and Democracy (UK 1943) 5th edn. (1976). George Allan and Unwin, London (1942)
55. Pierce, J., Delbecq, A.: Organization structure, individual attitudes and innovation. Acad. Manage. Rev. **2**(1), 27–37 (1977)
56. Thompson, V.: Bureaucracy and innovation. Adm. Sci. Q. **10**(1), 1–20 (1965). Special Issue on Professionals in Organizations
57. Roessner, J.D.: Incentives to innovate in public and private organizations. Adm. Soc. **9**(3), 341–365 (1977)
58. Kingdon, J.: Agendas, Alternatives, and Public Policies. Little, Brown, Boston (1984)
59. Fagerberg, J.: Innovation—a guide to the literature. In: Fagerberg, J., et al. (eds.) The Oxford Handbook of Innovation, Oxford University Press (2005)
60. Porter, M.: Competitive Advantage. Creating and Sustaining Superior Performance. The Free Press, New York (1985)
61. Damanpour, F.: The adoption of technological, administrative, and ancillary innovations: Impact of organizational factors. J. Manage. **13**(4), 675–688 (1987)
62. Cohen, W., Levinthal, D.: Absorptive capacity: a new perspective on learning and innovation. Adm. Sci. Q. **35**(1), 128–152 (1990)

63. Damanpour, F.: Organizational innovation: a meta-analysis of effects of determinants and moderators. Acad. Manage. J. **34**(3), 555–590 (1991)
64. Rogers, E.: The Diffusion of Innovation, 4th edn. The Free Press, New York (1995)
65. Rogers, E.: Diffusion of Innovations, 5th edn. Free Press, New York (2003)
66. Roberts, N., King, P.: Transforming Public Policy: Dynamics of Policy Entrepreneurship. Jossey-Bass, San Francisco (1996)
67. Amabile, T., Conti, R., Coon, H., Lazenby, J., Herron, M.: Assessing the work environment for creativity. Acad. Manage. J. **39**(5), 1154–1184 (1996)
68. Kanter, R.M.: The Change Masters. Corporate Entrepreneurs at Work. International Thompson Business Press, London; Boston (1996)
69. Mulgan, G., Albury, D.: Innovation in the Public Sector. Strategy Unit, Cabinet Office, London (2003)
70. Moore, H., Sparrow, M., Spelman, W.: Innovation in policing: from production lines to jobs shops. In: Altshuler, A.A., Behn, R.D. (eds.) Innovation in American Government. The Brookings Institution Press, Washington (1997). Chapter 12
71. Brown, K; Osborne, S.: Managing Change and Innovation in Public Service Organizations. Routledge (2012)
72. Meijer, A.: From hero-innovators to distributed heroism: an in-depth analysis of the role of individuals in public sector innovation. Public Manag. Rev. **16**(2), 199–216 (2014)
73. Altshuler, A., Behn, R. (eds.): Innovation in American Government. Brookings, Washington (1997)
74. Institution Bekkers, V., Edelenbos, J., Steijn, B. (eds.): Innovation in the Public Sector. Linking Capacity and Leadership. Palgrave MacMillan, Houndmills (2011)
75. Osborne, S., Brown, L. (eds.): Handbook of Innovation in Public Services. Edward Elgar Publishing (2013)
76. Teece, D.: Competition, cooperation, and innovation. J. Econ. Behav. Organ. **18**, 1–25 (1992)
77. Lundvall, B.: Product Innovation and User-Producer Interaction. Aalborg University Press, Aalborg, Denmark (1985)
78. Edquist, C., Hommen, L.: Systems of innovation: Theory and policy for the demand side. Technol. Soc. **21**, 63–79 (1999)
79. Katt el, R., Cepilovs, A., Drechsler, W., Kalvet, T., Lember, V., Tõnurist, P.: Can We Measure Public Sector Innovation? A Literature Review, LIPSE Project paper (2013)
80. Sahni, N., Wessel, M., Christensen, C.: Unleashing breakthrough innovation in government. Stanford Soc. Innov. Rev. **11**(3), 27–31 (2013)
81. Lagunes Marin, H., Rubalcaba Bermejo, L.: External sources for innovation in public organisations. Serv. Ind. J. **35**(13), 710–727 (2015)
82. Bugge, M., Bloch, C.: Between bricolage and breakthroughs—framing the many faces of public sector innovation. Public Money Manage. **36**(4), 281–288 (2016)
83. Demircioglu, M., Audretsch, D.: Conditions for innovation in public sector organizations. Res. Policy **46**(9), 1681–1691 (2017)
84. Light, P.: Sustaining Innovation: Creating Nonprofit and Government Organizations That Innovate Naturally. Jossey-Bass, San Francisco (1998)
85. Hood, C., Peter, H.: Talking about government. Public Manage. Rev. **13**(5), 641–658 (2011)
86. Cunningham, J., Kempling, J.: Implementing change in public sector organizations. Manage. Decis. **47**(2), 330–344 (2009)
87. Mulgan, G.: Ready or not?: taking innovation in the public sector seriously. Nesta (2007)
88. OECD: Achieving Public Sector Agility at Times of Fiscal Consolidation, OECD Public Governance Reviews. OECD Publishing, Paris (2015)

89. Bason, C.: Leading Public Sector Innovation: Co-creating for a Better Society. The Polity Press, London (2010)
90. Von Hippel, E.: Democratizing Innovation. MIT Press (2005)
91. Wagenaar, H., Wood, M.: The precarious politics of public innovation. Politics Gov. **6**(1), 150–160 (2018)
92. March, J.G., Olsen, J.P.: Rediscovering Institutions. Simon and Schuster, New York (2010)
93. Bekkers, V., Edelenbos, J., Steijn, B. (eds.): 'An Innovative Public Sector? Embarking in the Innovation Journey' in Innovation in the Public Sector. Linking Capacity and Leadership, pp. 197–221. Palgrave MacMillan, Houndmills (2011)
94. Scupola, A., Zanfei, A.: Governance and innovation in public sector services: the case of the digital library. Gov. Inf. Q. **33**(2), 237–249 (2016)
95. Bekkers, V., Tummers, L.: Innovation in the public sector: towards an open and collaborative approach. Int. Rev. Adm. Sci. **84**(2), 209–213 (2018)
96. Ojasalo, J., Kauppinen, H.: Collaborative innovation with external actors: an empirical study on open innovation platforms in smart cities. Technol. Innov. Manage. Rev. **6**(12), 12 (2016)
97. Gascó, M.: Living labs: implementing open innovation in the public sector. Gov. Inf. Q. **34**(1), 90–98 (2017)
98. Mcgann, M., Blomkamp, E., Lewis, J.M.: The rise of public sector innovation labs: experiments in design thinking for policy. Policy Sci. **51**, 1–19 (2018)
99. Andersen, S., Jakobsen, M.: Political pressure, conformity pressure, and performance information as drivers of public sector innovation adoption. Int. Public Manage. J. **21**(2), 213–242 (2018)
100. Van Acker, W., Bouckaert, G.: What makes public sector innovations survive? An exploratory study of the influence of feedback, accountability and learning. Int. Rev. Adm. Sci. **84**(2), 249–268 (2018)