



Innovation & Management Review
ISSN: 2515-8961
revistarai@usp.br
Universidade de São Paulo
Brasil

Sucupira, Grazielle; Saab, Flávio; Demo, Gisela; Bermejo, Paulo Henrique
Innovation in public administration: Itineraries of Brazilian
scientific production and new research possibilities
Innovation & Management Review, vol. 16, no. 1, 2019, January-March, pp. 72-90
Universidade de São Paulo
Brasil

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Innovation in public administration

Itineraries of Brazilian scientific production and new research possibilities

Grazielle Sucupira

Universidade de Brasília, Brasília, Brazil and Diretoria de Educação Aberta e a Distância, Universidade Federal dos Vales do Jequitinhonha e Mucuri, Diamantina, Brazil, and

Flávio Saab, Gisela Demo and Paulo Henrique Bermejo
Universidade de Brasília, Brasília, Brazil

Abstract

Purpose – The subject of innovation in public service has been gaining attention in Brazilian scientific practice and production. This paper aims to identify national studies on innovation in public administration and increase the level of knowledge about the subject, as well as to inspire new research and promote advances in theoretical and practical knowledge about innovation in the public sector.

Design/methodology/approach – The present study has a descriptive purpose, quantitative nature and was performed through a bibliometric study based on the protocol proposed by Cronin *et al.* (2008). Documentary data were collected from scientific articles, and quantitative techniques for descriptive statistics were used to analyze the results. Were selected Brazilian scientific journals classified with Qualis equal to or higher than B1, in the area of Public Administration and Business, Accounting and Tourism, in the quadrennium 2013-2016; a total of 164 journals searched.

Findings – The results herein indicate a research gap that should be filled by more theoretical studies. Also, they point to the need for multimethod research studies that promote the evaluation of product and process innovation, especially related to the phases of invention and implementation.

Originality/value – Few studies have covered public administration and, especially, innovation reviews; none of these studies focused on innovation in the Brazilian public sector, as proposed by this research; the period of analysis and coverage of journals used as search criteria also differ from other reviews in the area of innovation and public sector.

Keywords Innovation, Innovation in the public sector, Public sector

Paper type General review



1. Introduction

The public sector has been greatly affected by the external environment, facing turmoil, hostilities and unprecedented demands on society, translating into complexity and challenges in governing and delivering public services (Schwella, 2005). Still, the global New Public Management (NGP) movement, which has been strengthened in the past several decades, has generated strong questions about the performance of public organizations and has started to argue that the public sector should work with the same mechanisms and parameters adopted in the private sector (Damanpour *et al.*, 2009).

In the Brazilian context, the adoption of NGP precepts by the government has required changes in bureaucratic practices, with an emphasis on the efficiency and productivity of the public sector, pressing public managers to be more responsive to the demands of society, especially in the context of growing requirements for rights, quality and good service (De Medeiros *et al.*, 2017).

To respond to this context, public organizations have begun to seek greater innovative capacity and use innovation to achieve higher levels of organizational performance because of its potential to improve the efficiency, effectiveness and responsiveness of government organizations to society. Moreover, innovation can contribute to the recovery of the legitimacy of government institutions by better serving the needs and aspirations of citizens and users of public services (Damanpour *et al.*, 2009; Moore and Hartley, 2008; Schwella, 2005).

Despite the interest of public organizations in innovation, Potts and Kastle (2010) emphasized that the public sector is less innovative than it should be, and the quest for innovative practices in the private sector can be a critical issue. For the authors, the public sector demonstrated a deficit in innovation because of the lack of incentives; furthermore, the search for experiences and practices in innovation in private companies may be flawed, as the institutional environment of public organizations is very different.

It is in this context that the theme of innovation in the public service may have expanded its space in the literature and scientific production in Brazil. Therefore, this article aims to perform a bibliometric review to identify the national studies on innovation in public administration. The results of the article will increase the level of knowledge about the subject and will subsidize the proposition of a research agenda to promote advances in theoretical and practical knowledge when it comes to innovation in the public sector.

Few studies have covered public administration and, especially, innovation reviews, such as Paula and Keinert (2016), Brandão and Bruno-Faria (2013) and Lima and Vargas (2012) at the national level, and De Vries *et al.* (2016) internationally. However, none of these studies focused on innovation in the Brazilian public sector, as proposed by this research; the period of analysis and coverage of journals used as search criteria also differ.

Literature reviews and bibliometrics can support researchers in positioning their work and are therefore relevant because they can provide a view of the state of research in a given domain; the lack of existing synthesis inhibits the derivation of discoveries, which incapacitate the field of development toward a mature state and hamper practical application (Patrucco *et al.*, 2017).

To reach the objective of the research, we chose to perform a bibliometric revision based on the protocol proposed by Cronin *et al.* (2008), composed of the following steps: formulation of the research question; definition of the criteria for the inclusion and exclusion of articles; selection and access to articles; evaluation of the quality of the literature; and analysis, synthesis and dissemination of the results. The bibliometric review considered articles published in national journals, with a classification of intellectual production, according to Qualis da Capes (Coordination for Improvement of Higher Education

Personnel), in the evaluation of Public Administration and Business, Accounting and Tourism, in stratum equal to or greater than B1. The cut was made in this stratum because it is the criterion used by most postgraduate programs in administration to evaluate first-line production (Demo *et al.*, 2015)

This article is organized into five parts, in addition to this introduction. Section 2 presents the theoretical framework for innovation, which will be important for the analysis of the following sections. Section 3 describes the method used in this bibliometric review. Section 4 organizes a synthesis of the results obtained, while Section 5 analyzes and discusses the research agenda from the gaps identified in the bibliometrics. Finally, Section 6 discusses final considerations and the contributions of the literature review to the theory and practice of public administration.

2. Theoretical framework

Innovation is not just about something new; it is a process whereby agents, organizations and institutions are transformed by the effects of a new idea. In addition, it is the primary source of economic growth, industrial change and competitive advantage (Damanpour *et al.*, 2009).

A pioneer in studies that linked innovation to economic development, Joseph Schumpeter saw innovation as the mechanism of economic growth and development in a process he called “creative destruction” (Brandão and Bruno-Faria, 2013; Schumpeter, 1982). In this process, innovation involves the origin, adoption and implementation of ideas to make an organization different and more capable than others (Potts and Kastle, 2010). The Schumpeterian view of innovation provides a high potential for innovation in reducing costs, expanding markets and maximizing profits (Sørensen and Torfing, 2011).

Organizations innovate in response to the development of technological and managerial knowledge, the aspirations of society and the aspirations of managers who want to improve the performance levels of their organizations. It is a means to facilitate the achievement of performance objectives and to improve the supply of products and services. Involving organizations in innovative practices is a competitive response to the innovation of those organizations with which they compete in a modern global economy. In other words, it constitutes a competitive strategy to create new opportunities for profit and value creation (Damanpour *et al.*, 2009; Potts and Kastle, 2010).

Brandão and Bruno-Faria (2013) described innovation as a new combination of materials and productive forces to make new products viable. Potts and Kastle (2010) defined innovation as the development of new products, services, connections, processes, business models, markets or sources of supply that offer a competitive advantage to an organization. More simply, Walker (2008) advocated for innovation as a process by which new ideas, objects and practices are created, developed or reinvented. Eva Sørensen and Jacob Torfing (2011, p. 849), in turn, presented innovation as “an intentional and proactive process involving the generation and practical adoption and dissemination of new and creative ideas, aimed at producing a qualitative change in a specific context.”

Innovation researchers have been adopting conceptual typologies to study this theme, considering that the application of innovative practices is not always identical because of environmental and organizational factors. The most widely used typology is the one that distinguishes product innovations from process innovations (Damanpour *et al.*, 2009). In this perspective, innovation may occur in the set of ideas embodied in the *product* and in the set of ideas involved in the production process (Kotabe and Murray, 1989).

Another recognized typology, but one that is less used in the study of innovation, involves the differentiation between organizational innovation and technological innovation

(Damanpour *et al.*, 2009). According to Lam (2004), organizational innovation refers to the creation or adoption of a new idea or new behavior in an organization, and technological innovation is characterized by the possible combinations and incremental improvements in components and products. For the author, they are intertwined concepts, as the introduction of new technologies imposes challenges for companies to develop new organizational forms.

Moreover, the Organisation for Economic Co-operation and Development (OECD) (OCDE, 2007, p. 23) differentiates innovation into four types: product, process, marketing and organizational. Product innovation is the introduction of a new or improved good or service with respect to its intended features or uses. Process innovation is the implementation of a new or significantly improved production or distribution method. Marketing innovation is the implementation of a new marketing method with significant changes in product design or packaging, product placement, promotion or pricing. And organizational innovation is the implementation of a new method in business practices, work organization or external relations.

According to Cavalcante and Camões (2017), although the typologies presented by the OECD were conceived for the private sector, they are important references for other typologies that are more applicable to the public administration. The typology proposed by Damanpour *et al.* (2009), for example, consolidated innovation into four types: service, process, technological and administrative. For the authors, service innovation is the introduction of new services to customers or the provision of existing services to new customers. Process innovation aims to increase the efficiency and effectiveness of organizational processes to facilitate the production and delivery of goods or services to customers. Administrative innovation refers to changes in the structure and processes of the organization, in the administrative systems, in the knowledge used to carry out management work and in the management skills that enable an organization to function and succeed using its resources. Finally, technological innovation consists of introducing new elements into the production system or operating a service to produce its products or provide its services to customers.

Another important typology for understanding innovation is the conceptualization of its phases. As innovation does not have a single classification, the present study adopted the classification proposed by Hartley, who defined these phases as invention, implementation and diffusion. In the phase of invention, the generation of ideas is covered; implementation includes the process of translating ideas into practices, and diffusion is the dissemination of innovations inside and outside the organization (Cavalcante and Camões, 2017).

It is perceived that the conceptual framework for innovation is built and applied to the reality of private markets, especially competitive markets, where innovative practices have become a competitive differential in the search for new business opportunities. From this gap, Walker *et al.* (2002) identified that there was no widely accepted methodological approach to assess innovation in the public sector. According to them, the techniques used were developed in the 1960s and 1970s, which led researchers to seek models of analysis used in the private sector. However, Potts and Kastle (2010) understood that the analysis of innovation in the public sector should avoid copying the best practices of the private sector and avoid models of innovation in competitive markets. For these authors, the challenge was to discover which mechanisms worked in the achievement of innovation objectives in the public sector and use scientific experimental methods to carry out the evaluations.

Despite the challenges presented, there has been great practical and academic interest in the subject of innovation in the public sector (Moore and Hartley, 2008). While citizens complain about inefficiency and long lines for public services (Landau, 1993), there is a

growing expectation that governments and public institutions will adopt innovative practices to improve their performance (Walker *et al.*, 2002).

According to Alberti and Bertucci (2006), governments face three main challenges. First, they need to operate and deliver higher-quality services with reduced resources and limited operational capabilities. Second, they need to make public institutions more accountable, responsive and effective. Third, they need to respond more adequately to the demands of citizens for greater participation by society in the public sphere. According to the authors, these challenges require innovative institutional mechanisms and processes. In other words, innovation is a powerful and fundamental engine for the reform and revitalization of governmental institutions (Vigoda-Gadot *et al.*, 2008).

In Brazil, studies on innovation in the public sector have been gaining relevance, especially since the 1990s, when the Brazilian public administration started to face strong demand from society for changes and improvements in the provision of public services. The theme of innovation has grown in the practices of the Brazilian public administration and has become a trending topic in the literature of the country (Bresser-Pereira, 1996; Cavalcante and Camões, 2017; de Araújo *et al.*, 2015).

Some studies have sought to portray aspects of innovation from literature reviews. Paula and Keinert (2016) dealt with participatory institutional innovations from 1990 to 2014; Brandão and Bruno-Faria (2013) carried out an analysis of the scientific production in national and international periodicals on administration in the period between 2000 and 2010, with the theme of innovation in the public sector; Lima and Vargas (2012) aimed to situate the discussion about innovation in the public sector on research opportunities, in contrast to the theory of innovation in services.

In addition, three Brazilian studies deserve to be highlighted because they sought to investigate innovation in the public sector in Brazil, based on experiences in the Innovation Competition in Federal Public Management promoted by the National School of Public Administration (ENAP). Ferrarezi and Amorim (2007) analyzed the extent to which the innovations that occurred during the competition from 1996 to 2006 were related to changes in the Brazilian state and the characteristics of public management. The authors observed that the successes of the innovations were related to the clarity of the guidelines and the objectives of the initiatives, as well as to the entrepreneurial profiles of the public managers involved. In another study, Vargas (2010) sought to identify whether the innovative initiatives that received awards during the competition from 1996 to 2006 were somehow adopted, concluding that the more successful ones were those who had greater independence from the governmental sphere and were, therefore, less threatened by changes in political orientation. In addition, Cavalcante and Camões (2017) conducted a review of the national and international literature to subsidize the analysis of the innovation determinants of the winning candidates in the competition; the authors identified that the determinants of innovation tended to be influenced by the types and stages of innovation in which they were found.

At the international level, De Vries *et al.* (2016) developed an empirical framework of potentially important antecedents and effects of public sector innovation from a systematic literature review of texts between 1990 and 2014. The effects referred to the results of innovation as effectiveness, efficiency, citizen involvement and customer/citizen satisfaction. The antecedents were classified as drivers or barriers distributed in four levels: the environmental level, which relates to the external context; organizational level, which includes the structural and cultural characteristics of an organization; the level of innovation, which includes the intrinsic attributes of an innovation; and the individual level, which considers the characteristics of individuals who innovate. The authors found that the

antecedents were often approached independently, disregarding possible connections between them, while the effects were overlooked by most authors, who focused instead on the positive effects of innovations, especially effectiveness (De Vries *et al.*, 2016).

3. Methodology

The present study has a descriptive purpose, quantitative nature and was performed through a bibliometric study (Vanti, 2002). Therefore, documentary data were collected from scientific articles, and quantitative techniques for descriptive statistics were used to analyze the results. It should be emphasized that bibliometrics is a particularly relevant method of research when evaluating scientific production and communication (Araújo and Alvarenga, 2011), such as the survey of national production in terms of innovation in public administration reviewed in this case.

The bibliometry was based on the protocol proposed by Cronin *et al.* (2008). In this protocol, five stages were indicated for the development of the research:

- (1) *Formulation of the research question:* What is the bibliometric profile of the Brazilian articles published on innovation in public administration?
- (2) *Definition of the criteria for the inclusion and exclusion of articles:* First, Brazilian scientific journals were selected (Qualis equal to or higher than B1), classified in the area of Public Administration and Business, Accounting and Tourism, in the quadrennium 2013-2016, the most current rating available. This classification, in Brazil, corresponds to the Impact factor above 0 and the H-Scopus index above 0 (Crespi *et al.*, 2017). The results indicated a total of 164 journals to be searched. Then, the articles published in these journals were located by searching each scientific journal in the Scientific Electronic Library Online (SciELO), which is an electronic library that includes a collection of Brazilian scientific journals. Periodicals that were not integrated with SciELO were searched using their own systems. The following descriptors were used: innovation and public sector, innovation and public, management innovation, innovation in public management and the corresponding terms in Portuguese. To identify all the publications over time, we chose not to make any cuts related to the publication period.
- (3) *Selection and access to articles:* At this stage, 138 articles were identified, and full versions of all articles were obtained for analysis.
- (4) *Evaluation of the quality of the included literature:* All 138 articles were analyzed, and 102 were discarded after analysis of the abstract, introduction and conclusion because they did not fit the scope of this research. In this way, 36 articles were considered for analysis, using the following categories: journal name, qualis stratum, article title, study framework, aim of the study, classification of the objective, nature of the study, governance level of innovation, sphere of power in which innovation took place, governing body in which innovation took place, region of Brazil where innovation took place, object of innovation, thematic aspect of innovation, collection instruments used and analysis instruments used. Despite not restricting the period of publication, no articles were identified prior to 1996.
- (5) *Analysis, synthesis and dissemination of results:* During this stage, the bibliometric indicators, according to the categories listed in the previous stage, were analyzed and interpreted for the 36 articles. Based on the analysis and interpretation of each indicator, the main information found in the research data was collected, enabling the identification of patterns, discussions and research gaps for the development of future studies.

In addition to data from the articles, data were also collected on research groups using the Directory of Research Groups – Plataforma Lattes of the National Council for Scientific and Technological Development (CNPq). Data collection took place in September 2017.

4. Results

The results are presented in three sections. In the first one, the contextual analysis allows us to identify associations between the general characteristics of the articles, such as periods of greater publication, periodicals with greater frequency of publication and more frequent subjects. In the second section, the theoretical-empirical results are presented and discussed, which allow the identification of the patterns in nature, levels of governance of innovation, the thematic aspects of innovation, collection and analytical tools used and other empirical criteria. Finally, the results of the institutionalization of innovation research in public administration in Brazil are discussed in the third section; here, we sought to understand where the groups of innovation research in the public sector are located, as well as in which institutions the publications related to the theme are concentrated.

4.1 Contextual results

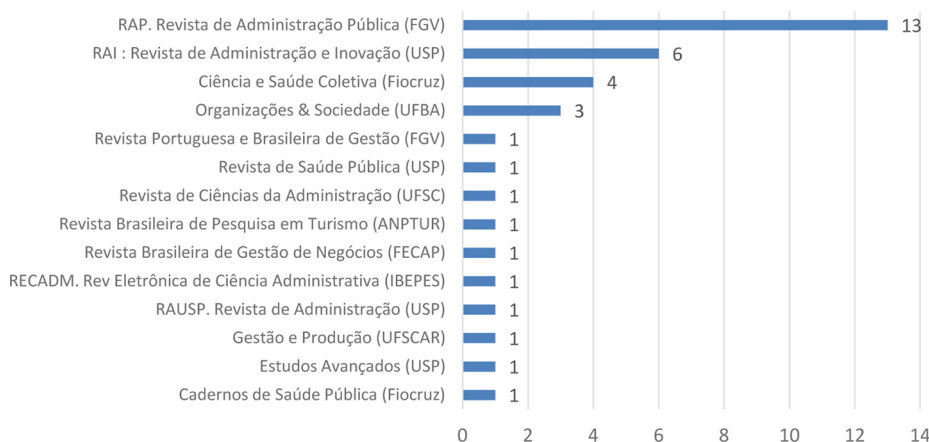
The 36 articles analyzed in this research involved a total of 85 researchers, including first authors and coauthors. There were very few researchers with recurrent publications on the subject. Only four researchers had more than one publication on innovation in public administration. Pelayo Munhoz Olea (University of Caxias do Sul) and Vicente da Rocha Soares (Federal University of Goiás) published two articles each, while Marcos de Moraes Sousa (Goiano Federal Institute) and Tomás de Aquino Guimarães (University of Brasília) each published three articles. The other 81 researchers only published one article on the subject. Of the first authors, only Marcos de Moraes Sousa and Vicente da Rocha Soares published two articles on innovation in public administration.

In relation to the 164 journals surveyed, only 14 journals addressed the theme of innovation in public administration. Of these, nine journals are classified in strata A2 and five in stratum B1, by the classification performed by the Qualis system. The *Journal of Public Administration* (RAP) leads the number of publications with 13 articles, followed by the *Revista de Administração e Inovação* (RAI) and the *Revista Ciência ea Saúde Coletiva*, which had six and four publications, respectively. These three journals were responsible for 63.8 per cent of the publications on the subject in Brazil. Figure 1 illustrates the publication profile of the topic of innovation in public administration in national journals.

The analysis of the year of publication of the articles indicates that the theme of innovation in public administration began to appear in scientific periodicals in the late 1990s, with the first publication in 1997 (Figure 2). There was a strong growth in the number of publications starting in 2012, when there were, on average, four publications per year. The upward curve at the end of the analyzed period reveals researchers' growing interest in the subject.

The analysis of the articles also showed that approximately 78 per cent are theoretical-empirical and 22 per cent have theoretical test characteristics. Figure 3 shows the distribution of articles according to their classification and year of publication. A predominance of theoretical-empirical articles was observed in the initial years, except for 2002 and 2008, which presented a theoretical essay, but not a theoretical-empirical one. It can be concluded that the theoretical construction on the subject has been incipient, and authors have used international works to build their theoretical framework in applied research. Only in 2012, however, was there a certain degree of regularity of theoretical essays published, with an average of one theoretical essay published per year.

Figure 1.
Number of
innovation articles
published by
periodical



Source: Elaborated by the authors (2017)

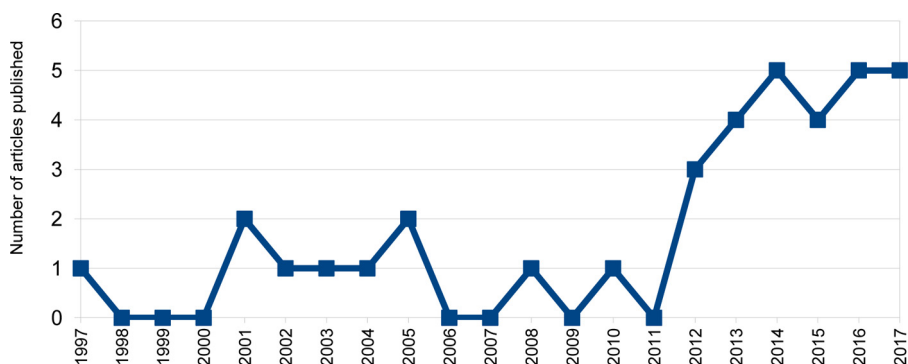


Figure 2.
Number of
innovation articles
published per year

Source: Elaborated by the authors (2017)

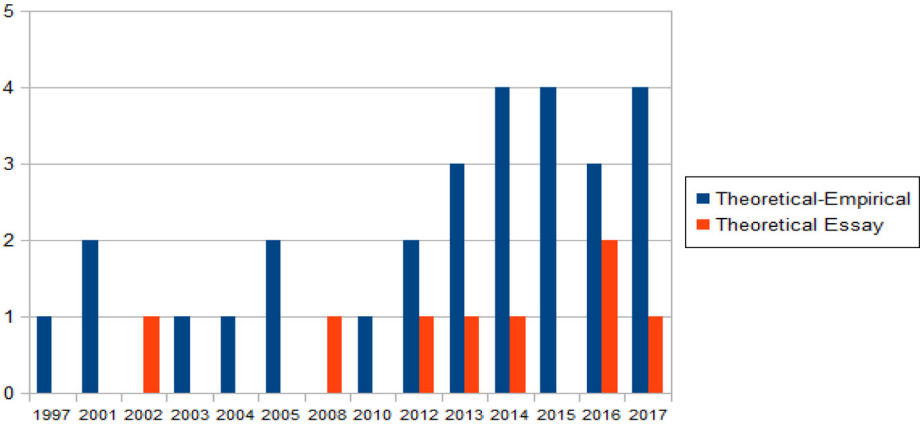
4.2 Theoretical-empirical results

As already mentioned, of the 36 articles identified, 28 were framed as theoretical-empirical. Among them, 23 (82 per cent) were classified as qualitative, 4 (14 per cent) as multimethod and only 1 (4 per cent) as quantitative. Thus, there is a strong predominance of qualitative studies in the theoretical-empirical publications concerning innovation in public administration in Brazil.

Given this predominance, the prevalence of documents and interviews as the main instruments of data collection is not surprising. Table I shows that documents are used as data collection in 75 per cent of the articles, and interviews are used in 46.43 per cent. It is important to note that, given the possibility of the combined use of instruments, the sum of the percentages may exceed 100 per cent.

Additionally, it was identified that, in about 46 per cent of theoretical-empirical articles, the authors used triangulation or a combination of instruments. In 35 per cent, the authors

Figure 3.
Classification of
articles per year



Source: Elaborated by the authors (2017)

Table I.
Data collection and
analysis
instruments used

Stage	Used tools	(%)
Data collection instruments	Documents	75.00
	Interviews	46.43
	Questionnaires	17.86
	Field notes	17.86
Data analysis techniques	Content analysis	25.00
	Descriptive statistics	25.00
	Structural equations	3.57

Source: Elaborated by the authors (2017)

used documents only, in 16 per cent interviews only and in about 3 per cent, they only applied questionnaires.

Regarding data analysis techniques, in almost half of the articles, the authors did not explicitly indicate them; these articles, unfortunately, described the results without using or declaring the use of specific analysis techniques. Table I shows that 25 per cent of theoretical-empirical articles used content analysis, based on documents or interviews and 25 per cent used descriptive statistics, obtaining the data through questionnaires or documents. Finally, one article used structural equations as data analysis instrument in a quantitative study.

Another analysis referred to identifying and classifying the objectives proposed in the theoretical-empirical articles. Categorization had not been defined a priori. After reading all the objectives, they were gathered around two proposals: to know innovative experience or to investigate innovative practices in a context. In the first category, to know innovative experience, are the articles that have proposed to study one or more pre-selected innovation experiences in public administration. In the category, investigating innovative practices, there was no pre-selection of innovative practices. We defined a context in public administration and sought to identify, characterize and/or evaluate the innovative practices included within it.

Thus, Table II shows that in 16 of the 28 empirical theorists (57.14 per cent), the researchers set out to know some innovative experience developed in the public sector; they pre-defined the experience and sought to investigate it. In the other 12 articles, the researchers defined a context in public administration and sought to identify, characterize and/or evaluate innovative practices in that context.

The analysis of the 28 theoretical-empirical articles still allowed the identification of the context of the experiences and innovative practices in public administration. The context of the innovation studied in each article was classified according to the level of government, the type of power and the governing body related to it (Table III). Some contexts could not be classified because they did not involve specific organs and were removed from the analysis. As a result, the sum can be less than 100 per cent.

Innovations in public administration at the municipal and state levels were the most researched. The level of municipal government was the focus of analysis in 39 per cent of the articles, either as a single focus or in conjunction with other levels of government, while the state government was present in 36 per cent of the studies. The smallest part of the research, around 20 per cent, analyzed innovation in the context of the federal government.

The sphere of power studied (executive, legislative and judiciary) indicated a great concentration of innovations in executive power (75 per cent of articles) and emerging legislative and judicial research, which indicates an important literature gap. Under the scope of the executive power, the analysis showed that it was most of the investigations took place in municipal secretariats and prefectures.

Goal scoring	Frequency	(%)
Know innovative experience	16	57.14
Investigate innovative practices	12	42.86
Total	28	100

Source: Elaborated by the authors (2017)

Table II.
Classification of the
research objective

Context	Classification	Frequency	(%)
Level of government	Municipal	9	32.14
	State	8	28.57
	Federal	5	17.86
	Municipal and State	1	3.57
	Municipal, State and Federal	1	3.57
Sphere of power	Executive	21	75.00
	Judiciary	1	3.57
	Legislative	1	3.57
Governing bodies	Municipal Secretariats	7	25.00
	City Halls	5	17.86
	Ministries	2	7.14
	Secretaries of State	2	7.14
	Court Union Accounts	1	3.57
	Labor Courts	1	3.57

Source: Elaborated by the authors (2017)

Table III.
Level of government,
type of power and
government agency
studied

By recognizing the contexts of each innovative experiment, it was possible to identify the region where it was applied. The experiences implemented in the southeast region of Brazil were analyzed by 25 per cent of the articles, which is consistent with the predominance of authors' institutions in this region of the country. In total, 17.86 per cent of the studies were concentrated in the south of the country, as well as the same percentage in the Midwest, with federal initiatives predominating in the latter case. There were experiences that could not be classified according to the region of the country and, therefore, the sum is not identical to 100 per cent. [Figure 4](#) summarizes this information.

The types of innovation evaluated by the articles were also analyzed, as well as the innovation phase in which each experiment was investigated (Hartley *apud* [Cavalcante and Camões, 2017](#); [Damanpour et al., 2009](#)). [Figure 5](#) shows that the types of innovation most treated in the articles were technological process and process innovations; both were covered in about 21 per cent of the articles, while in about 10 per cent of the articles, the authors combined more than one type of innovation.

As for the innovation phases, the data systematized in [Figure 6](#) indicates that most of the articles dealt with the diffusion of the innovations (35.7 per cent), as they analyzed aspects after the innovation was implanted into the institution, such as effects and results. Another 10.7 per cent addressed the process of implementing the innovations, while in 17.9 per cent of the articles, the researchers addressed both implementation and diffusion. None of the articles focused on exploring aspects related to the generation of ideas – the invention phase – delineating another research opportunity.

4.3 Results of institutionalization

In this section, we seek to understand where the research groups in innovation are in the public sector, as well as in which institutions the publications on the subject are concentrated and how they relate to other institutions. The data were collected in CNPq.

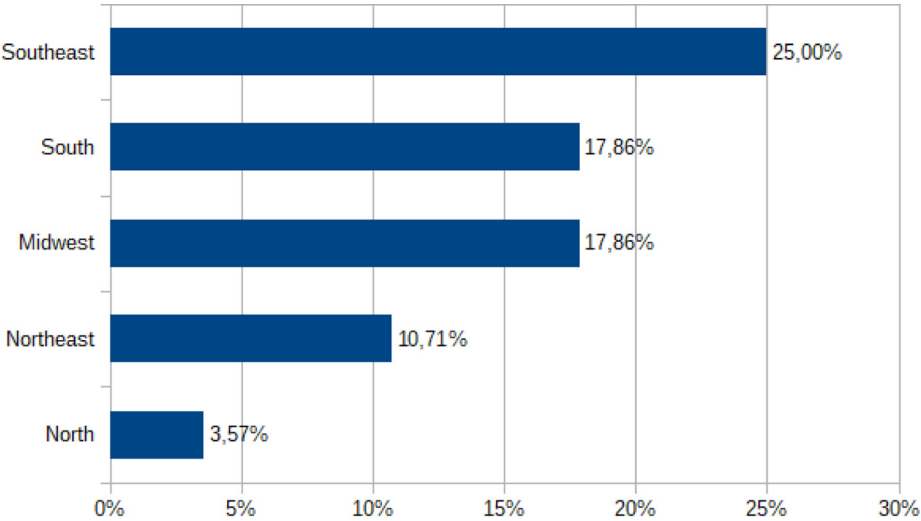


Figure 4.
Location of the
innovation
experiments studied

Source: Elaborated by the authors (2017)

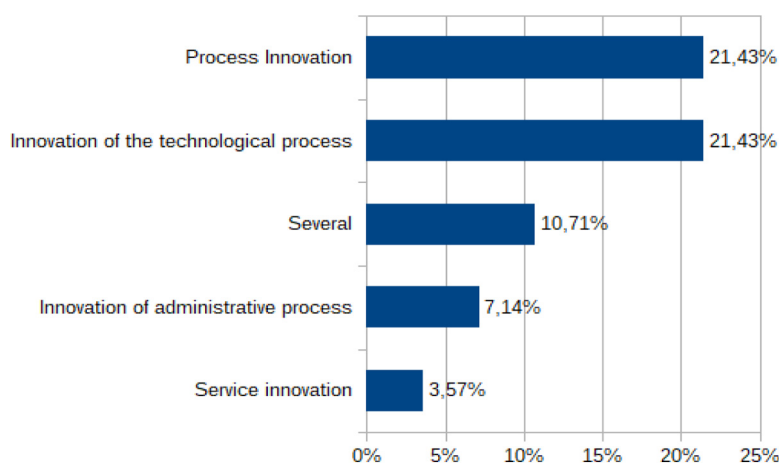


Figure 5.
Type of innovation
evaluated

Source: Elaborated by the authors (2017)

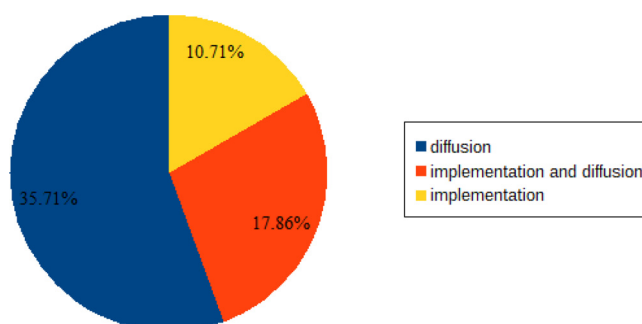


Figure 6.
Phase of innovation
addressed

Source: Elaborated by the authors (2017)

There were 33 institutions linked to researchers studying innovation in the public administration. The institution with the largest number of researchers was the University of Brasília (UnB), with 15 authors. Next, were the National School of Public Health—FioCruz (RJ) and the University of São Paulo (USP), with eight and seven authors linked to them, respectively. [Table IV](#) lists the institutions with more than one author who published articles on innovation. In addition to these, there were another 15 institutions with only one author, which are not presented in the [Table IV](#).

Another important measure of the institutionalization of the topic refers to the capillarity of research groups on the subject. A survey was conducted in the Directory of Research Groups of CNPq using the following search terms: “innovation and public sector,” “innovation and public administration,” “innovation and public management” and “innovation and government.” The search looked for the names of the research groups and their lines of research. As a result, a total of 17 related active research groups were found.

Table IV.
Institutions linked to
researchers studying
innovation

Institution	No. of researches
University of Brasília (UnB)	15
National School of Public Health (FioCruz)	8
University of São Paulo (USP)	7
Federal University of Goiás (UFG)	6
University of Caxias do Sul (UCS)	6
Federal University of Bahia (UFBA)	5
Federal University of Minas Gerais (UFMG)	3
University of the State of Rio de Janeiro (UERJ)	3
University of Taubaté (UNITAU)	3
Ministry of Health (MS)	3
Methodist University of Piracicaba (UNIMEP)	2
Federal University of Sergipe (UFS)	2
University of São Paulo (UNESP)	2
Federal University of Rio Grande do Sul (UFRGS)	2
Secretariat of Public Management of the State of São Paulo	2
João Pinheiro Foundation (FJP)	2
Getúlio Vargas Foundation (FGV-SP)	2
National School of Public Administration (ENAP)	2

Source: Elaborated by the authors (2017)

Table V summarizes information about the groups, including the institution to which the group was linked and the federation unit of the institution, as well as the name of the group and its specific research line within public sector innovation. There were 15 institutions covering 18 groups; the University of the State of Rio de Janeiro (UERJ), the Federal University of Rio de Janeiro (UFRJ) and the Federal University of Rio Grande do Norte (UFRN) each had two registered research groups. Federal institutions had the most research groups, and of the 18 groups identified, only one was linked to a private higher education institution.

The research lines on innovation in the public sector involved approximately 200 people, of which 119 were researchers and 71 were students. This represents an average of four students and seven researchers per research line.

Using data from the Lattes Platform, Figure 7 shows the evolution of the creation of the research groups. The years not shown indicate that no group was created. We can see the recent evolution of the number of research groups dealing with public management in Brazil. Half of the groups were created between 2015 and 2017, including five groups created in 2016 and three groups registered in 2017.

Finally, the scientific, technical and advisory indicators were investigated using the 2000 and 2010 censuses; these were the first and last years' available at the Research Directorates Base, with the search terms "innovation and public sector," "innovation and public administration," "innovation and public management," applied to "production keyword." Disregarding the duplicate results from the four search terms and the relevance of the results to the theme of innovation in the public sector, there were 9 studies in 2000 and 23 in 2010. Production more than slightly doubled during the period; however, the increases in publication on the subject mainly occurred as of 2012, which was after the period covered in the CNPq platform.

5. Discussion and research agenda

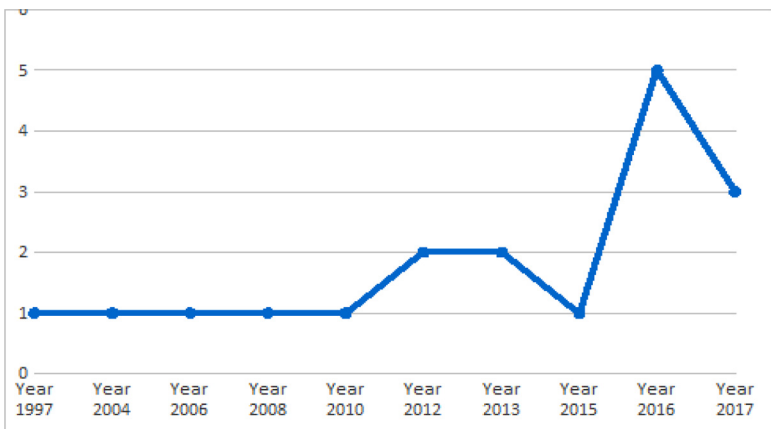
The results of this review point to dispersion and heterogeneity among the researchers who have published articles on innovation in the public sector and its institutions. The same

Federation Unit	Institution	Research group	Research line
Ceará	Faculty Luciano Feijão	Research Group on Entrepreneurship, Innovation, Sustainability and the Environment	Knowledge Management, Entrepreneurship, Innovation and Public Management
Distrito Federal	Institute of Applied Economic Research	Innovation in the Public Sector	Research, Development and Innovation in Organizations and Government
	University of Brasília	Laboratory of Innovation and Strategy in Government	Innovation, Strategy and People in Organizations and Government; Research, Development and Innovation in Organizations and Government
Goias	Goiano Federal Institute	Innovation and Strategy	Innovation in Public Service
Mato Grosso	Federal Institute of Mato Grosso		Management of Innovation in Public Administration and Business Administration
Minas Gerais	João Pinheiro Foundation	Network for Studies and Research in Administration and Innovation	Innovation in Public Management
	Federal University of Minas Gerais	Modernization and Innovation in Democratic Public Management*	Innovation and Entrepreneurship in the Public Sector
	Federal University of Viçosa	Nucleus of Public Management Studies	Innovation in the Public Sector
Pará	Federal University of Pará	Creative Territory Management and Development	Entrepreneurship, Innovation and Co-production in the Public Sector
Pernambuco	Federal University of Pernambuco	Laboratory of Innovation and Control in the Public Sector	Innovation in Public Management
Rio de Janeiro	University of the State of Rio de Janeiro	Laboratory of Analysis of Policies and Public Organizations	Innovation in Public Management
	University of the State of Rio de Janeiro	Innovation and Society	Creativity, Innovation and Culture of Innovation in the Public Sector
	Federal University of Rio de Janeiro	Innovation in Public Management	Innovation in the Public Sector and in Public-Private Partnerships
	Federal University of Rio de Janeiro	Public Management and Society	Knowledge Management and Innovation in the Public Sector
Rio Grande do Norte	Federal Fluminense University	Research Laboratory on Management, Innovation and Society	Networks and Innovation in Urban and Rural Spaces
	Federal Institute of Education, Science and Technology of Rio Grande do Norte	Interdisciplinary Group of Research in Management, Practices and Public Policies	Public Management, Innovation Policies, Public-Private Partnerships and Social Management
	Federal University of Rio Grande do Norte	Nucleus of Innovation in Public Management	Public Administration
	Federal University of Rio Grande do Norte	Group of Studies and Research in Institutional Management and Public Policies	

Note: *The research group, Modernization and Innovation in Democratic Public Management, has no registered research line
Source: Prepared by the authors with data from the Lattes Platform (2017)

Table V.
Distribution of
research groups on
innovation in the
public sector by
federation unit and
institution

Figure 7.
Number of research
groups created per
year



Source: Elaborated by the authors with Lattes/CNPq platform data (2017)

reality was observed by [Paula and Keinert \(2016\)](#), suggesting that there is no greater persistence of researchers in the line of research. However, the change in this scenario of dispersion and heterogeneity involves the strengthening of the research groups that approach the theme. The number of research groups studying this topic has grown in the past three years, indicating an optimistic trend toward expanding scientific production in this area.

Although research groups are expected to play an important role in expanding production relative to innovation in the public sector, the present research indicates that there has been an increase in publications on the topic since 2012, particularly in the *Revista de Administração Pública* (RAP) and in the *Journal of Administration and Innovation* (RAI), which reflects receptiveness to the theme by first-line Brazilian magazines.

It was also verified that there is a strong prevalence of theoretical-empirical studies, which represented 78 per cent of the articles identified, reinforcing the results obtained by [Paula and Keinert \(2016\)](#), [Hocayen-da-Silva et al. \(2008\)](#), [Brandão and Bruno-Faria \(2013\)](#) and [Lima and Vargas \(2012\)](#). This may reflect the nature of the field and public administration itself, which is essentially applied and focused on problem-solving, practical activities, systematization based on experience and lessons learned ([Pacheco, 2003](#)). In this direction, it is important to mention that Paes de [Paula and Keinert \(2016\)](#) understood that greater emphasis should be placed on theoretical analysis to improve future debates. Thus, a research gap for the thematic that is to promote the advance in theoretical research about the innovation in the public administration is perceived.

In the methodological field, the predominance of qualitative studies, which represented 82 per cent of the analyzed articles, points to the possibility of advances in quantitative research. [Brandão and Bruno-Faria \(2013\)](#) cited a suggestion by [Potts and Kastle \(2010\)](#) that there is a new research agenda for innovation in the public sector that focuses more on scientific methods of randomized controlled experiments and less on imitation of good practices. In addition, surveys that mix qualitative and quantitative methodologies are always welcome because they offer possibilities to measure the phenomenon in question, while at the same time shedding light on the understanding and explanation of the phenomenon.

Regarding the evaluated aspects of innovation, the present research showed the prevalence of studies on process innovation and technological process innovation. The results reinforce the findings of [Brandão and Bruno-Faria \(2013\)](#), who observed the prevalence of innovation in services and processes, while [Cavalcante and Camões \(2017\)](#) pointed out that the type of innovation implemented most often was the technological process, and [Lima and Vargas \(2012\)](#) also identified the prevalence of studies of process innovations. This result indicates that another important research gap persists, namely, the analysis of other types of innovation, such as product and organizational innovation.

It is worth noting that the Brazilian context is relatively different from the international scenario researched by [De Vries et al. \(2016\)](#), as their study sample primarily dealt with the innovations in administrative processes that are often conducted for reform ideas similar to NGP and much less attention was given to innovations in technological processes, often related to e-government and redesign, as well as innovations in governance and conceptual innovations.

Another important result is that there is a strong concentration of research that analyzes the diffusion stage of innovation, with few studies analyzing implementation and none focused on the invention. The focus of most studies has been to present the effects and results of already implemented innovations, which give rises to another research gap. It should be noted that more than a third of the articles studied did not analyze any of the innovation phases.

According to [De Vries et al. \(2016\)](#), innovation is often considered a value in itself; this could imply that the process of generating or adopting an innovation is considered important enough by itself. This argument may justify the scarce dedication to researching the phases of innovation in the public sector in more depth.

5.1 Summary of the research agenda

Deriving from the discussion of the results presented in the previous section, here are some suggestions for future research on innovation in the public sector:

- *Theoretical research:* The prevalence of theoretical-empirical studies points to the lack of promotion of the advancement of theoretical research on innovation in public administration.
- *Advances in quantitative research:* As in other areas of the public administration field, innovation in public administration has been approached from a qualitative point of view; there is a need to go beyond the qualitative domain, which implies adopting a greater variety of methods.
- *Analysis of innovation in other aspects besides process innovation and technological process innovation:* There is a need for advancement in the research of other types of innovation, which can highlight product and organizational innovation or even a combined analysis of these types of innovations in public institutions.
- *Exploration of the analysis of innovation phases (implementation and diffusion):* In addition to exploring the implementation phase further, it is possible to develop further research that addresses the invention phase, such as studies of the process of generating ideas in organizations that are relevant and necessary to the current socio-political-economic context.

In short, the results in the present research indicate the need for a research agenda with more theoretical and quantitative/multi-method studies. However, the conduct of further theoretical-empirical research is not discouraged. On the contrary, the results point to an

important theoretical-empirical research agenda that advances quantitative approaches, especially using experiments. It is also important that new research assesses product and organizational innovations, as well as promotes innovation evaluations at the invention and implementation stages.

These points converge with the future research suggestions of De Vries *et al.* (2016), including moving from a qualitative domain to the use of a greater variety of methods, such as surveys, experiments and multi-method approaches; emphasizing the development and testing of theories, given that studies are often poor in theory; and conducting more cross-sectoral and intersectoral studies.

6. Final considerations

This work aimed to increase the level of knowledge about research related to innovation in public administration, as well as to inspire new research by proposing an agenda for further studies. The bibliometric review allowed reflections that may encourage new researchers to cross the wide avenue of study possibilities outlined above.

The results pointed to dispersion and heterogeneity among the researchers who published articles on innovation in the public sector and their institutions, but also showed an increase in national publications on the subject as of 2012. The present study also verified the predominance of qualitative theoretical-empirical studies, which used documentary data collection and content analysis and descriptive statistics. It also highlighted the prevalence of studies on process innovation and technological process innovation, as well as the concentration of research that analyzed the diffusion stage of innovation.

It is important to emphasize that this study was not intended to exhaust the theme nor to cover all related literature; rather, it focused on a bibliometric review of selected articles of the Brazilian scientific journals classified in the Public Administration and Business, Accounting and Tourism area, in a stratum equal to or greater than B1. Despite the clear rationale for the scope of the present study, this may be considered a limitation, as studies published in lower strata journals were not reviewed, and works published in annals of events were not contemplated because they were treated as works under construction.

In conclusion, the current panorama of national scientific research on innovation in public administration has been drawn herein, pointing out its first-rate academic production and the institutionalization of research in Brazil, revealing new challenges that can translate into new possibilities to encourage the effective adoption of innovation in the public sector.

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Corresponding author

Grazielle Sucupira can be contacted at: graziellesucupira@gmail.com

Associate editor: Dennys Eduardo Rossetto