

GREEN KNOWLEDGE MANAGEMENT IN THE PUBLIC SECTOR: SYNTHESIS AND RESEARCH AGENDA

GESTÃO DO CONHECIMENTO VERDE NO SETOR PÚBLICO: SÍNTESE E AGENDA DE PESQUISA

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PURPOSE: Knowledge management aims to maximize the results of an organization through processes that foster the creation and sharing of knowledge. The objective of this article was to analyse what the international scientific literature has focused on regarding knowledge management in the public sector and whether there is research related to knowledge management with environmental management. This is a systematic review of the state of the art of the knowledge management in the public sector. The authors' main contribution is the proposal of a research agenda with recommendations for future research. Twenty articles pertinent to the purpose of this research were identified. The results of the study identified that the topic of knowledge management is still quite insipid in the public sector, encountering numerous cultural and technological barriers. The study showed that knowledge management practices in the public sector tend to significantly increase the performance of organizations, generating greater efficiency and productivity. As shown in the results, the proposed ideal is to align learning, leadership, technology and organizational culture to the process of sharing organizational knowledge.

KEYWORDS: Knowledge management. Public Sector. Scientific research. Green Knowledge. Green Human Resource Management.

RESUMO: A gestão do conhecimento visa maximizar os resultados de uma organização por meio de processos que fomentem a criação e o compartilhamento do conhecimento. O objetivo deste artigo foi analisar a literatura científica internacional a respeito da gestão do conhecimento no setor público e se existem pesquisas relacionadas à gestão do conhecimento com a gestão ambiental. Esta é uma revisão sistemática do estado da arte da gestão do conhecimento no setor público. A principal contribuição dos autores é a proposição de uma agenda de pesquisa com recomendações para pesquisas futuras. Foram identificados 20 artigos pertinentes ao objetivo desta pesquisa. Os resultados do estudo identificaram que o tema gestão do conhecimento ainda é bastante insipiente no setor público, encontrando inúmeras barreiras culturais e tecnológicas. O estudo mostrou que as práticas de gestão do conhecimento no setor público tendem a aumentar significativamente o desempenho das organizações, gerando maior eficiência e produtividade. Conforme demonstrado nos resultados, o ideal proposto é alinhar aprendizagem, liderança, tecnologia e cultura organizacional ao processo de compartilhamento do conhecimento organizacional.

PALAVRAS-CHAVE: Gestão do conhecimento. Setor público. Pesquisa científica. Conhecimento verde. Gestão de Recursos Humanos Verde.

1 Introduction

Knowledge is a decisive factor in the contemporary market because it is an intangible asset that demands increasingly dynamic and intelligent work patterns. Knowing how to manage it strategically becomes an essential task in promoting better results for an organization (DRUKER, 1993; TERRA, 2001).

The discipline that has gradually occupied a prominent position in organizational studies, Knowledge Management, focuses on the use of a set of technologies and processes in order to manage organizational knowledge, determining what can be used for the benefit of the company, storing the relevant knowledge and providing its effective use (HARLOW, 2008).

Also understood as an organizational learning process, knowledge management is an intentional effort to make the present knowledge in an organization stimulated, registered and shared, with the purpose of extending both organizational performance and human performance (TEIXEIRA, 2000).

However, according to the research of Sveiby and Simons (2002), the practices of knowledge management in public organizations are still widely underused in comparison to private initiatives. Therefore, the theme of knowledge management presents itself as a major challenge to the public sector in the 21st century, facing very complex barriers (BATISTA, 2012).

Thus, the present work aims to explore the Scopus and Web of Science databases in order to identify papers that discuss the management of knowledge within the public administration. To this end, a literature review is presented that crosses the two areas of knowledge in order to ascertain what the international scientific research has been discussing about the topic. Thus, the main research lines, the volume and periodicity of the publications, the most used methodological procedures, as well as the main objectives and results found by the studies, are verified. Lastly, a research agenda is proposed.

Given the context presented, this work is justified by two main reasons: first,

the subject of knowledge management is a relatively new subject in institutions and provokes intense debates about its meaning, application and comprehensiveness, both in the private sphere and in the public domain (BEM et al., 2013, MASSARO et al., 2014); and second, we believe in the relevance of the theme for the evolution of Brazilian public management, as Brazil is a country with a young democracy permeated by instrumental and mechanistic rationalism (DE ANGELIS, 2013).

The present study is divided into five sections: the first consists of the introduction, with the presentation of the objectives and justifications of the work. The second concerns the theoretical framework that underlies the research. In the third section, methodological aspects are discussed. We then present the analysis of the results, and in the final section, some final considerations about the introduction of the research agenda.

2 Knowledge management

Increasingly, organizations realize the need to value their intangible assets: those that are not clearly measured but have great influence in achieving the institution's objectives. In another era, writes Currie, Waring and Finn (2008), the belief in information and communication technology was enough, and the question of the nature of knowledge was ignored, with little attention paid to broader social and organizational factors such as culture and politics.

Active knowledge has become valued and sometimes even more relevant and valued than physical assets. Although the value of these assets may not appear directly on a company's balance sheet, its impact on the company's performance is enormous (SNELL; BOHLANDER, 2009).

The importance of knowledge is quite evident in Drucker (1993), who says that knowledge is not only another resource, alongside the traditional factors of production – labour, capital and land – but the only significant resource today. Knowledge is a combination of experience, values, information and insights expe-

rienced by a person leading to the incorporation and evaluation of new experiences and other information (DAVENPORT; PRUSAK, 1998).

Recent changes in business emphasis have been driven by many factors, such as the increasingly sophisticated and demanding market, deeper insights into business functions, and a greater understanding of knowledge-intensive work, and of how people think, learn, and use knowledge (SCHON, 1983, WIIG, 1997; NONAKA, TAKEUCHI 1995; KLEIN, 1998).

Thus, organizations are being compelled to improve and care for existing knowledge in the organization and in the minds of their employees, as it is seen as a new type of business asset (BRITO; BOLSON, 2014). Thus, it is necessary to understand what knowledge management (KM) entails, the similarities and differences between public and private organizations for the applicability of KM models, and what the barriers are to apply it in public management.

According to Stewart (2002), it is used to identify what is known, to capture and organize this knowledge and to use it in order to generate returns. For Wiig (1997), KM is used to make the organization act smarter by facilitating the creation, accumulation, development and use of quality knowledge.

In the view of Fleury and Oliveira Jr. (2001), knowledge management implies the adoption of managerial practices compatible with the processes of creation and individual learning, in addition to the systemic coordination of efforts in the organizational and individual, strategic and operational plans, and norms formal and informal. In the words of Dalkir (2013), it is a combination of strategies, tools and techniques.

KM is a concept that emerged within organizations in the 1990s, and it was not only associated with the operational process but mainly organizational strategy (SVEIBY, 1998; SANTOS, 2001). For Oliveira (2013), it is the structured process for managing information, adding value to it and distributing it appropriately throughout the company's various organizational units.

2.1 Knowledge Management in the Public Sector: a reflection on models

An excellent field of activity of the KM is public administration due to the specificity that distinguishes it from private organizations, thus stimulating several studies in the area. As Wiig (1997) argues, knowledge management has emerged to create and leverage intellectual capital in private enterprises and public administration. However, when talking about knowledge management, there is a divergence of opinion among the main authors about importing models already existing in the private initiative or creating a new customized model for public administration.

Abdullah and Date (2009) cite the following reasons that the public and private sectors have in common to implement KM: (i) to attract and retain human capital; ii) promote social capital; (iii) build and use structural capital, (iv) share processes and best practices (in innovative practices), and (v) encourage collaboration (ABDULLAH; DATE, 2009).

Medeiros and Guimarães (2003) believe that the dichotomy between public and private opens horizons for the applicability in the public sphere of concepts previously considered only by private organizations. However, there are those who understand that the simple importation of models from the private to the public initiative would not be ideal.

Cong and Pandya (2003) argue that a generic KM model is needed for the public sector because the differences between the public and private sectors alter the implementation of the KM strategy. According to Osborne and Gaebler (1998), the fundamental mission of government is 'doing good', not 'making money'. Therefore, instead of the absolute calculation used by companies, governments work with absolute moral values.

For Batista et al. (2005), the public administration needs a model of its own because, while the private sector implements the KM for profit and growth, a public administration mainly seeks quality, efficiency, social effectiveness and economic and social development.

Lastly, Batista (2012) proposes his own KM model for the public sector and

divides it into six components: strategic drivers of the organization, KM feasibility, KM process detail, KDCA cycle, KM results and stakeholders.

2.2 Barriers to the Application of KM in the Public Sector

It is worth analysing at that moment the main characteristics present in the public sector that hinder the importation of generic models of private organizations, justifying, with this, the theoretical support presented by these authors.

Some points are very relevant to the current situation, due to the dysfunction of the bureaucracy and the organizational culture common to the public organ: lack of customer focus, inefficiency, comfort generated by stability, and lack of investment in server training, among others.

On the other hand, Gottems, Giacomini and Skrobot (2001) state that public organizations have shaped themselves as closed, self-directed systems, with an emphasis on control, rules, specific spheres of competence, and hierarchy. They believe that a rule-oriented government, with rules to be followed, results in a system that is not flexible and not adaptable to the new rules of everyday life.

Bureaucratic governments lose focus on the client, whom they must serve. Few people in government use the term 'customer'; many have not yet discovered who their customers are. Most governments are totally blind to customers, whereas private-sector companies are totally geared to them (OSBORN, GAEBLER, 1998 apud SCHLESINGER, 2008).

Reflecting on the issue of stability, Pereira (1998) understands that it impedes the adequacy of the employees' cadres to the real needs of service, and at the same time, it enables the implementation of an efficient public administration system, based on a system of incentives and punishments.

Analysing the precepts of Carbone (2000), it is interesting to highlight three points in public organizations that make their changes difficult:

- i) Authoritarianism / centralization: excessive verticalization of the hierar-

chical structure and centralization of the decision-making process;

ii) Paternalism: high control of the movement of personnel and the distribution of jobs, positions and commissions within the logic of dominant political interests;

iii) Reformism: disregard for advances made, administrative discontinuity, loss of technology and widespread mistrust. Corporatism as an obstacle to change and a mechanism for protecting technocracy.

For Ranjbarfard et al. (2014), the issue still involves obstacles in the own management of knowledge processes due to lack of competence and holistic perspective on the part of the public managers, mainly regarding the practices of organizational learning and dissemination of knowledge.

Therefore, culture is an important precondition and constraint for knowledge management. The implication is that KM initiatives, rather than being imposed, should be sensitive to organizational culture and social practices; any successful KM system tends to evolve naturally from the organization's cultures and processes (CURRIE; WARNING; FINN, 2008).

3 Methodological aspects

This section is divided into two parts. At the outset, the classification of the work regarding the methodologies used will be explained. Subsequently, the operational path of the research will be reported, detailing the bases of the search, the criteria of analysis and the steps taken that led to the result of the study, to be presented in the next chapter.

This work adopted an approach of a predominantly qualitative nature and exploratory character, with a literature review that used bibliographical research and content analysis as instruments of data collection and treatment.

The exploratory research consists in the definition of an object of study and

use of criteria and methods in order to bring to light the main characteristics of the object, its size and definition, to acquire a clearer understanding of the subject and to elaborate possible hypotheses (SELLTIZ; JAHODA; DEUTSCH, 1974). In this study, we attempted to explore management of knowledge in public administration, verifying what has been raised about this topic in scientific research. Thus, many bibliometric parameters were used.

According to Cervo and Bervian (2002), a bibliometric study seeks to explain a problem through what is published in scientific documents and can be carried out alone or together with exploratory, descriptive or experimental research. These authors add that in this modality, it is used to determine the existing academic or cultural contributions and to analyse their changes. Lastly, they affirm through bibliometrics that the mastery of the state of the art of a subject is also objectified, being a means of formation par excellence and a basic procedure for this purpose.

Whatever the area of study or research modality adopted, there will always be a need for bibliographical research, since it provides prior knowledge of the current state of the subject (SANTOS, PARRA FILHO, 2012) and thus constitutes a basilar instrument to a literature review study.

It should be noted that the present research, although presenting quantifiable and Cartesian aspects, assumed a qualitative appreciation termed in the content analysis as data treatment.

The results of the research were extracted in September and October 2017, together with the Scopus and Web of Science databases, inspecting a 10-year time-frame (2007 to 2016).

Initially, a preliminary search was made using only the keywords “knowledge management” in the field of title of articles, published from 2007 to 2016; this resulted in 2,054 titles. Of these, 721 were indexed in the Web of Science database and 1,333 in the Scopus database. After adding the keyword “public” to the search, the number of results fell to 97 articles.

The selection was then restricted to articles in the areas of administration,

public administration, social and/or economic political sciences; this resulted in 41 articles.

In tabulating the 41 articles and the readings of the respective abstracts, the following exclusion filters were used: 1) articles not pertinent to the research topic (although they contained the keywords searched for) and, 2) articles not available for download.

After filtering, 28 articles remained (9 on the Web of Science database and 19 on the Scopus database). Of these, 8 articles were repeated, reaching the final number of 20 articles, which were published in 13 different journals: Journal of Knowledge Management, Public Administration, Knowledge Management Research & Practice, International Journal of Public Administration, Knowledge and Process Management, International Journal of Business Information Systems, International Journal of Learning and Intellectual Capital, International Journal of Knowledge-Based Development, International Journal of Knowledge Management Studies, Informacion Tecnologica, Lecture Notes in Business Information Processing, Journal of Organizational Studies and Innovation and Espacios.

For the elaboration of the word cloud, he used the site Word Cloud Generator Jason Davies.

Lastly, the abstracts, introductions and conclusions of the 20 articles were read and the analysis variables previously defined were tabulated. The results are summarized below.

4 Results and analysis

After searching through keywords in the thirteen international journals selected, we found 20 articles pertinent to the objective of the present research. Table 1 lists the journals and their respective number of publications, from 2007 to 2016. It can be seen that, of the 13 journals analysed, two stand out in the number of published articles involving the subject of knowledge management in the public

sector: Journal of Knowledge Management (four articles) and Knowledge Management Research and Practice (three articles). Together, the two English journals published approximately 35% of the articles in the analysed period.

Table 1 - Journals, year and articles frequency

JOURNAL	2008	2009	2010	2011	2012	2013	2014	2015	2016	Total
Journal of Knowledge Management	0	0	1	0	0	1	0	2	0	4
Knowledge Management Research & Practice	0	0	0	0	0	0	1	1	1	3
International Journal of Knowledge-Based Development	0	0	0	0	0	1	0	1	0	2
International Journal of Public Administration	0	1	0	0	0	1	0	0	0	2
Journal of Organizational Studies and Innovation	0	0	0	0	0	0	0	0	1	1
Public Administration	1	0	0	0	0	0	0	0	0	1
Espacios	0	0	0	0	0	0	0	0	1	1
Lecture Notes in Business Information Processing	0	0	0	0	0	0	0	1	0	1
Knowledge and Process Management	0	0	0	0	0	0	1	0	0	1
International Journal of Knowledge Management Studies	0	0	0	0	0	0	1	0	0	1
Informacion Tecnologica	0	0	0	0	0	1	0	0	0	1
International Journal of Business Information Systems	0	0	0	0	0	1	0	0	0	1
International Journal of Learning and Intellectual Capital	0	0	0	1	0	0	0	0	0	1
Total										20

Source: Prepared by the authors

An important factor to consider is the frequency of productions, as summarized in Table 2. Considering the temporal cut of the research, the years with the

highest number of publications were 2013 and 2015, with five articles in each year. When analysing the total number of articles produced during the 10-year period, it is possible to verify that there is not a significant number of articles published on the subject in the public sector, which can be explained by the topic being a recent one that has been infused with more vigour only with the emergence of the knowledge economy and innovative and creative management models (BATISTA, 2012, p.39). In addition, it must be noted that for a variety of reasons (mainly cultural, structural and technological), the public sector appears to be rather behind in knowledge management compared to private sector practices (DOMINGOS BERNARDO et al., 2016).

Table 2 - Periodicity of publications

Title	Authors	Institutions	Magazine	Year
The limits of knowledge management for UK public services modernization: The case of patient safety and service quality	Currie, Graeme; Waring, Justin; Finn, Rachael	University of Nottingham	Public Administration	2008
Information and knowledge management in public sector networks: The case of the US intelligence community	Desouza, K. C.	University of Washington	International Journal of Public Administration	2009
Knowledge management initiatives in Indian public and private sector organizations	Chawla, Deepak; Joshi, Himanshu	International Management Institute	Journal of Knowledge Management	2010
Modelling for the build-up of intellectual capital in public private partnerships-based knowledge management	Oliveira, S.R.M., Cazariani, E.W.	University of São Paulo	International Journal of Learning and Intellectual Capital	2011
Knowledge management practices in a public sector organization: the role of leaders' cognitive styles	Jain, Ajay K.; Jeppesen, Hans Jeppe	School Business & Social Science	Journal of Knowledge Management	2013
Knowledge sharing and knowledge management modelling in public sector accounting organization: Case evidence from Malaysia	Salleh, K.	Universiti Teknologi MARA	International Journal of Knowledge-Based Development	2013
Knowledge Management Practices in a Public Research Institute: The Case of Technological Center of the Army in Brazil (CTEx)	Ansuattigui, R.V., Cauliriaux-Pithon, A.J., Fernandes, J.L.	Centro Federal de Educação Tecnológica Celso Suckow da Fonseca	Informacion Tecnologica	2013
Developing a conceptual model for investigating the adoption of a knowledge management system in the Saudi Arabian public sector	Alatawi, F.M.H., Dwivedi, Y.K., Williams, M.D.	Swansea University	International Journal of Business Information Systems	2013
A Knowledge Management and Organizational Intelligence Model for Public Administration	De Angelis, C.T.	Skema Business School	International Journal of Public Administration	2013
Reinventing the public sector in Africa through knowledge management	Mbhalati, O.J.	Department of Education	Journal of Knowledge Management	2014

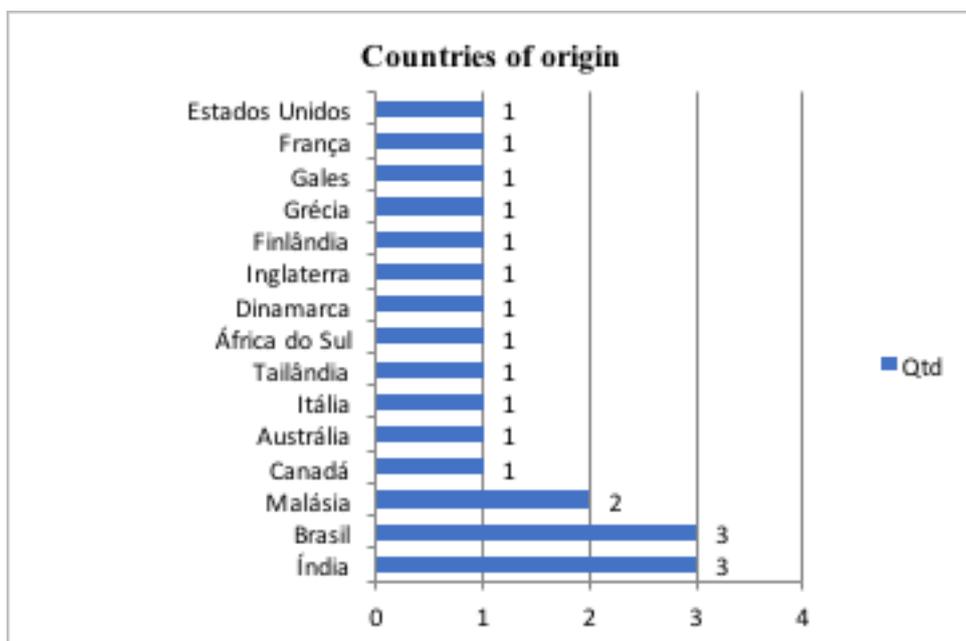
What is the role of knowledge management in establishing the effectiveness of public welfare services?	Laihonen, H., Sillanpää, V.	Tampere University of Technology	Knowledge and Process Management	2014
Linking knowledge management, job satisfaction and productivity in the Greek public sector	Tsirikas, A.N., Katsaros, K.K.	University of Macedonia	International Journal of Knowledge Management Studies	2014
Collaborating across institutional and jurisdictional boundaries: enabling the emergence of a national innovation system through public knowledge management	Vines, Richard; Jones, Michael; McCarthy, Gavan	University of Melbourne	Knowledge Management Research & Practice	2015
Public sector knowledge management: a structured literature review	Massaro, M., Dumay, J., Garlatti, A.	University of Udine	Journal of Knowledge Management	2015
Customer-centered knowledge management: challenges and implications for knowledge-based innovation in the public transport sector	Sindakis, S., Depeige, A., Anoyrkati, E.	Bangkok University	Journal of Knowledge Management	2015
Knowledge infrastructure capabilities and knowledge management: The case of an Indian public sector undertaking	Pandey, S.C., Dutta, A.	NALSAR University of Law	International Journal of Knowledge-Based Development	2015
Measurement model of the relationship between knowledge management enablers and knowledge management performance in the public sector	Abu Bakar, K., Rahim, N.Z.A., Ibrahim, R.	Universiti Teknologi Malaysia (UTM)	Lecture Notes in Business Information Processing	2015
Impact of Knowledge Management Practices and Organizational Culture on Organization Performance: A Study of Public Sector Organizations of Pakistan	Raza, Syed Saqlain; Ghani, Usman; Rafique, Muhammad Kamran	Hamdard University	Journal of Organizational Studies and Innovation	2016
Process evaluation of implementing knowledge management tools in public health	Kothari, Anita; Hovanec, Nina; Sibbald, Shannon L.; Donelle, Lorie.; Tucker, Patricia.	Western University	Knowledge Management Research & Practice	2016
Knowledge management in the public bank for regional development [Gestão do conhecimento em banco público de desenvolvimento regional]	Pereira, V.H.B., Brito, L.M.P., Aouar, W.A.E., Gurgel, F.F.	Universidade Potiguar-UNP	Espacios	2016

Source: Prepared by the authors

The table above also shows the frequent partnerships in authorship, present in 80% of the cases. Only four articles were written by a single author. It should also be mentioned that each study had a different authorship, with no author having more than one publication. The same was true of educational institutions. Each study came from a different institution, which may lead one to infer that there is not yet a single prominent exponent in the theme.

With regard to the countries of origin of the articles selected, fifteen distinct nationalities were identified, and seven of them from the European continent (Figure 1). Among them, India and Brazil had the highest incidence, with three articles each; Malaysia appears next in sequence with two articles published, and the other countries had one publication each. The three articles from India addressed the subject of knowledge management in the public sector under the perspectives of organizational culture and performance, types of knowledge, technology and initiatives in KM. Articles of Brazilian origin focused on the themes of diagnosis in KM, intellectual capital and public-private partnership. The other topics related to the central theme of the research will be presented in the sequence.

Graph 1 - Countries of origin



Source: Prepared by the authors

The publication that was most cited among the articles studied (according to data extracted on October 11, 2017, from the databases researched) was the article “The limits of knowledge management for UK public services modernization: The case of patient safety and service quality” published in the Public Administration magazine in 2008; it has 107 citations (Table 5). In addition to the relevance of the topic addressed by the article, it is possible to infer that the great volume of citations was because the article was the oldest ever published on the topic, and because it appeared in a scientific journal of quality.

This article deals with a case study on the implementation of a Knowledge Management system in a university hospital, focusing on patient safety, followed by verification of the impact of this model in the area of surgeries. The results of the study pointed out that resource constraints, staff shortages and cultural traditions of the medical sector were the main barriers to the implementation of the system (CURRIE; WARNING; FINN, 2008).

Table 3 - Most cited whorks

Articles	Authors	Citations
The limits of knowledge management for UK public services modernization: The case of patient safety and service quality	Currie, G.; Waring, J.; Finn, R.	107
Knowledge management initiatives in Indian public and private sector organizations	Chawla, D.; Joshi, H.	47
Public sector knowledge management: a structured literature review	Massaro, M., Dumay, J., Garlatti, A.	45
Knowledge management practices in a public sector organization: the role of leaders' cognitive styles	Jain, A. K.; Jeppesen, H. J.	37
Information and knowledge management in public sector networks: The case of the US intelligence community	Desouza, K. C	32
A Knowledge Management and Organizational Intelligence Model for Public Administration	De Angelis, C.T.	11
Collaborating across institutional and jurisdictional boundaries: enabling the emergence of a national innovation system through public knowledge management	Vines, R.; Jones, M.; McCarthy, G.	8

Customer-centered knowledge management: challenges and implications for knowledge-based innovation in the public transport sector	Sindakis, S., Depeige, A., Anoyrkati, E.	8
Developing a conceptual model for investigating the adoption of a knowledge management system in the Saudi Arabian public sector	Alatawi, F.M.H., Dwivedi, Y.K., Williams, M.D.	8
Reinventing the public sector in Africa through knowledge management	Mbhalati, O.J.	7
Knowledge sharing and knowledge management modelling in public sector accounting organization: Case evidence from Malaysia	Salleh, K.	5
Linking knowledge management, job satisfaction and productivity in the Greek public sector	Tsirikas, A.N., Katsaros, K.K.	3
Process evaluation of implementing knowledge management tools in public health	Kothari, A.; Hovanec, N.; Sibbald, S. L.; Donelle, L.; Tucker, P.	3
What is the role of knowledge management in establishing the effectiveness of public welfare services?	Laihonen, H., Sillanpää, V.	3
Knowledge infrastructure capabilities and knowledge management: The case of an Indian public sector undertaking	Pandey, S.C., Dutta, A.	2
Modelling for the build-up of intellectual capital in public private partnerships-based knowledge management	Oliveira, S.R.M., Cazarini, E.W.	1
Impact of Knowledge Management Practices and Organizational Culture on Organization Performance: A Study of Public Sector Organizations of Pakistan	Raza, S. S.; Ghani, U.; Rafique, M. K.	0
Knowledge management in the public bank for regional development [Gestão do conhecimento em banco público de desenvolvimento regional]	Pereira, V.H.B., Brito, L.M.P., Aouar, W.A.E., Gurgel, F.F.	0
Knowledge Management Practices in a Public Research Institute: The Case of Technological Center of the Army in Brazil (CTEx)	Ansuattigui, R.V., Caulliraux-Pithon, A.J., Fernandes, J.L.	0
Measurement model of the relationship between knowledge management enablers and knowledge management performance in the public sector	Abu Bakar, K., Rahim, N.Z.A., Ibrahim, R.	0

Source: Prepared by the authors

The preponderant methodology in the 20 works analysed was that of qualitative studies, with exploratory and descriptive research, as shown in the table below.

For the technical procedures, the majority were case studies, whose purpose is to intensively analyse a given social unit. Godoy (1995) conceptualizes this technique as a way of carrying out empirical research and of studying contemporary phenomena within a context that is not clearly defined.

Table 4 - Most used research methodologies

Approach	
Qualitative	40%
Quantitative	30%
Quantitative-Qualitative	15%
Theoretical	15%
Goals	
Exploratory	46%
Descriptive	46%
Explanatory	8%
Technical Procedures	
Case study	48%
Documentary research	24%
Bibliographic research	20%
Data collect	4%
Field study	4%

Source: Prepared by the authors

The most abundant keywords found in the abstracts of selected publications were knowledge, management and public, as shown in Figure 1. The key words are information, model, culture, intelligence, technology, tacit knowledge, performance, and communication.

Figure 1 - Keywhord cloud



Source: Prepared by the authors (via Word Cloud Generator Jason Davies).

The analysis of abstracts and article introductions allowed us identifying the most recurrent subjects within the central theme “knowledge management in the public sector”, highlighting these topics: organizational culture; information management and knowledge dissemination; and types of knowledge. Together, these three strands accounted for approximately 33% of publications, according to Table 3.

Table 5 - Main topics covered in articles

Main topics of Knowledge Management addressed in the articles	%
Organizational culture	11%
Information management and dissemination of knowledge	11%
Types of knowledge	11%
Evaluation of KM implementation	7%
Organizational Intelligence / Intellectual Capital	7%
KM limits and barriers in the public sector	7%
Models of KM	7%
Practices and performance in KM	7%
Information technology and information systems	7%
Innovation	4%
Leadership Styles	4%
Knowledge management strategies	4%
Public-Private Partnerships	4%
Productivity	4%
Professional satisfaction	4%

Source: Prepared by the authors

It is worth noting that the theme of organizational culture, whether directly or indirectly and to varying degrees, was a topic present in most of the publications analysed. For Bem, Prado and Delfino (2013), the cultural issue is extremely important in the public service; one must take into account that servants usually must carry out their activities, even the most trivial ones, with a greater bureaucratic load when compared to the employees of private companies. The authors also argue that this demand tends to hamper worker productivity, generate frustration, inhibit creativity and create a tendency to meet only the minimum labour requirements, which are obstacles to Knowledge Management.

Considering the findings obtained in the analysis of the 20 articles, it was possible to list the main objectives of the studies. The two most recurrent objectives were: a) to investigate the influence of knowledge management on worker productivity and performance, work satisfaction and organizational culture; and b) to examine the importance of knowledge management practices in the public sector, listing the key factors for success and its implementation barriers. The table below summarizes the 11 main objectives identified in the works studied.

Table 6 - Main objectives of articles

Main Objectives of Articles	
1	To investigate the influence of KM on worker productivity/performance, job satisfaction and organizational culture.
2	To examine the importance of KM practices in the public sector, and key factors for the adoption of this system and to highlight its challenges.
3	To diagnose the stage of the public sector KM and verify which practices are used.
4	To evaluate the impact of KM on the public sector and the results of its implementation.
5	To investigate the impact of leaders' cognitive styles on KM practices in public sector organizations.
6	To understand the various dimensions of KM and how they differ in public and private sector organizations.
7	To study the information processes and to analyse the problems related to the knowledge in the evaluation of the performance of the information system.
8	To verify the relationship between KM and organizational intelligence and to develop a theoretical model contemplating these two areas.
9	To review and critique the scientific research on KM in the public sector.
10	To contribute to the construction of intellectual capital in the field of public-private partnerships (PPP) through KM.
11	To demonstrate that the African government could become more effective and efficient if it focused more on KM than on e-government alone. (e-government).

Source: Prepared by the authors

In relation to the results found in each article, the research identified that the practice of knowledge management tends to significantly increase the performance of organizations, generating greater efficiency and productivity. According to the articles, the critical success factor is to align learning, leadership, technology and organizational culture to the process of sharing the knowledge of the organization. Another point highlighted was the need for acceptance and participation of employees in the process of implementing and elaborating strategic planning, because only in this way will it be possible to achieve the objectives of the organization.

Table 7 - Main results found

Main Results Found	
1	KM practices improve organizational performance, as there is a significant relationship between KM and performance. KM brings better access to information, greater efficiency and productivity, but it must be part of the company's larger philosophy, requiring collective commitment.
2	These are the key factors to improve the process of the sharing and performance of KM: learning, leadership, technology and organizational culture and especially technological resources, together with other contributory factors such as incentive policies and performance recognition.
3	Resource constraints and staff shortages were identified as the main barriers to implementing a customer-focused KM system. Unconcerned stakeholders in research/diagnostics, resistance to managerial solutions to knowledge-sharing problems, and a poor relationship among groups present problems in developing an effective KM system.
4	Both the tactical and strategic levels of the institution have formally implemented structured KM processes and are at a "good" level. However, a study carried out in another public institution has resulted in the lack of a structured management plan and poor application of management practices.
5	The development of sustainable technologies and innovations requires KM practices that allow access to knowledge of stakeholder needs, mapping, and knowledge assessment. Networking in sectors of the same follow-up multiplies and strengthens the results of KM practices, as they generate interinstitutional innovations.
6	There is a negative impact from radical and innovative-collaborative leadership styles, while the style of the leader-adaptor has a positive impact on KM practices.
7	Private companies, compared to public ones, presented better results in all 5 KM dimensions studied. However, they still need to improve.
8	Workers' productivity and job satisfaction are positively affected by the implementation of the KM model.
9	The KM model and organizational intelligence have, as main factor to be taken into account, to improve the processes of creation and application of knowledge; the fact is that leaders must see cultural change as a first step and develop and integrate different skills: intellectual, managerial, emotional and spiritual.
10	KM is an important growth area in the public sector; there are few authors specializing in the area, with a low number of interactions between them.
11	The current challenge is to develop KM systems to collect, distribute and disseminate information to enable and facilitate the development of policies for the early implementation of PPPs, assisting in decision-making processes.
12	For the provision of public services to be efficient and effective, knowledge management must be a general strategy and e-government can be one of its components.

Source: Prepared by the authors

It should also be emphasised that the leadership factor plays an important role in the processes of knowledge management implementation. Considering all the bureaucratic inheritance that permeates public institutions, the question of leadership is another challenge to the sector; since the elected managers hold temporary positions, discontinuity of projects from one management to the other is common, and it is difficult to promote change in an organizational structure.

Moreover, none of the articles that conducted research on knowledge management in the public sector addressed the subject green knowledge.

5 Final considerations

The present article aimed to verify the international scientific research on knowledge management in the public sector by analysing two databases: Web of Science and Scopus. As expected, we found low academic production on the subject: only 20 articles. Comparatively speaking, when carrying out search on knowledge management in general, the number of publications about the topic reaches more than two thousand articles (considering the filters detailed in chapter 3).

In terms of content analysis, the study showed that knowledge management practices in the public sector tend to significantly increase the performance of organizations, generating greater efficiency and productivity. As shown in the results, the proposed ideal is to align learning, leadership, technology and organizational culture to the process of sharing organizational knowledge. Another result of the research was the perception of the importance of leadership for effective knowledge management, since it has the power to favour (or not) the acceptance and participation of employees in the implementation process, which, in turn, must be aligned with the institution's strategic planning.

In view of the results, we can point out a research agenda based on the gaps found in this segment of knowledge:

- Expand the research with the analysis of other databases, using new

criteria and search filters, and by adopting other methodological procedures such as the snowball technique.

- Design local case studies for comparison purposes to identify practical improvements, promote scientific research and solve local problems.
- Study the relationship between technological development and knowledge management in the public sector.
- Carry out studies comparing knowledge management practices in the international public sphere with the national one, with a benchmarking partner, so that both sides studied receive advantages by sharing best practices.
- How sustainability is a constant concern and is being target of various research in various fields of knowledge it is important to understand how knowledge management can collaborate, for example with, Environmental Management, Green Human Resource Management practices, Green Supply chain Management practices, Social Responsibility practices in the public sector.

Given that, to date, the academic environment lacks articles that address knowledge management within public administration, this study hopes to contribute to the development of a more comprehensive and consolidated body of knowledge that arouses greater scientific interest in the topic. By giving more publicity and visibility to the issue, it is hoped that the results of this study may serve as a tool for providing insight that will enable Brazilian public administrators to envision new and more intelligent management practices that will be reflected in providing better services to society.

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