

Competitiveness in Public Institutions: A Bibliometric Analysis

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Abstract. *The competition among public organizations has been an increasingly popular area of investigation in recent years in the field of governance, due to the necessity for efficient, transparent, and innovative government practices. This paper studies the history of the concept's scientific development using a bibliometric approach and an analysis of the publications recorded in the Scopus database from 2015 to 2024. For this purpose, 418 papers were selected, considering only articles and reviews. The outcomes point to the growing trends of publications over time, particularly from 2019 on, suggesting the development of competitiveness research as an academic area that includes perspectives from both management, economics, and policy studies. In this context, the most prominent position is taken by North America and Western Europe, where the highest impact can be attributed to the United States, Great Britain, and Germany. Nevertheless, some contributions from Eastern Europe, Latin America, and Asia can be observed, reflecting the ongoing process of globalization in this sphere. Based on keywords' co-occurrence and bibliography analysis, four clusters of research topics were distinguished – innovations, governance, sustainability, and higher education. This study shows that research on competitiveness of public institutions has transformed from its narrow economic nature towards a more holistic framework considering other factors. The current paper is aimed at analyzing changes in academic discourse on competitiveness during the last decade.*

Keywords: public institutions, competitiveness, bibliometric analysis, VOSviewer, Scopus, public management.

Introduction

In a world that is becoming more complicated and internationalized, the demand from society for public organizations to perform not just as administrative bodies but also as organizations capable of competing and creating value is growing. Whereas the change from the bureaucratic model to the performance model has affected the role of public administration such that it is currently encountering an enormous challenge regarding its competitiveness, competitiveness is a thoroughly researched subject when applied to businesses and market economies. Competitiveness presents some difficulties when applied to public administration.

Competitiveness in public institutions may be viewed through several perspectives that range from the capability of adapting to the social, technological, and economic trends without violating equality and confidence to offering top-quality services. According to recent scientific studies, competitiveness in public organizations is associated with the ability to utilize innovations, digital technologies, and sustainability in the context of institutional governance by ensuring that organizational operations meet requirements for good governance and corporate social responsibility. In the current world, where public organizations are subjected to pressures from various stakeholders, including citizens, competitiveness is not only an objective for managing public organizations but also a source of their legitimacy and sustainability.

In addition to this evolution, bibliometric analysis has developed into a valuable methodological tool in analyzing the structure and evolution of fields. Bibliometrics allows researchers to detect publication trends, collaboration patterns and thematic trends within a specific

area of knowledge through quantitative approaches and visualization techniques. As noted by Aria and Cuccurullo (2017), "bibliographic mapping is a powerful methodological tool for providing an exhaustive picture of scientific advancement and thus serving as the basis for research strategies in the future." The issue is especially pertinent to multidisciplinary areas where the demarcation lines among economics, management, and public administration are blurring.

When discussing public institution competitiveness specifically, bibliometrics gives insights into what the notion means, who the leading authors, journals, and regions are that shape discussions on this issue. According to Donthu et al. (2021), in addition to measuring the output, bibliometric analysis allows tracing how information and knowledge spread in different institutions and between nations. Thus, using such an approach is critical when assessing whether the field is developed and whether there are any collaboration gaps or new topics for further study.

The visual representation of bibliometric networks, for instance, in the form of a co-authorship, co-citation, or keyword networks made by VOSviewer (Van Eck & Waltman, 2017), shows how concepts within an area relate to one another. Bibliometrics can be applied to track the development of certain concepts starting from economic competitiveness to competitiveness in terms of public policy.

The purpose of this research is to examine the evolution of the notion of competitiveness in scientific literature related to public institutions using a systematic bibliometric methodology on the Scopus database during the years 2015-2024. There are three main goals: (1) to evaluate publication dynamics and topic dynamics, (2) to detect top authors, articles, and countries, and (3) to map out the intellectual landscape of the field by means of bibliographic coupling and co-word analysis. The study will provide an overview of scholarly output based on structured data, thus contributing to the discussion on how competitiveness was redefined and generalized beyond economics into new performance and governance paradigms.

Literature review

For many years, the term 'competitiveness' was confined to the private sector where it involved productivity, innovation, and efficiency in the use of resources. In the last twenty years or so, there has been a steady shift in the meaning of this term in that today, public institutions are being called upon to be nimble, open, and flexible. This shift in the direction of public institutions is due to the emphasis placed on accountability and performance-based management by scholars who define competitiveness as "a multi-dimensional concept that involves economic efficiency as well as institutional effectiveness and social legitimacy" (Donthu et al., 2021).

A number of research studies emphasize the role of innovation and adaptation to social changes in the competitiveness of public organizations apart from their capability to provide high-quality services. The concept of institutional competitiveness is concerned with the creation of public value, building up of trust, and ensuring coherence between administrative goals and citizen expectations. In other words, moving away from the management approach towards the governance approach has been facilitated by the use of digitalization, the strategy for an open government, and sustainable development practices, which incorporate environmental and technological components within institutional performance (Bataille et al., 2018).

Competitiveness is also associated with the quality of institutions and governance mechanisms in recent researches. According to Álvarez et al. (2018), the competitiveness of institutions occurs when public policies, organizational culture, and leadership work together to develop an efficient and reliable governance system. The competitiveness of institutions, from this

perspective, reflects institutional reputation and resilience rather than just being a measurement tool for economic development. When public institutions are working within a well-regulated framework and have a consistent strategic approach, they achieve better performance and higher levels of satisfaction among citizens.

As part of this dynamic body of knowledge, bibliometrics and scientometrics have played key roles in illustrating developments within scientific fields and clustering new bodies of knowledge. As stated by Aria and Cuccurullo (2017), "bibliographic mapping makes possible an understanding of the intellectual structures, citation patterns, and relationships in terms of themes," and thus provides a basis for an evidence-based view of the way in which disciplines change over time. Likewise, Van Eck and Waltman (2017) stress the importance of visualization methods such as VOSviewer for studying issues related to collaboration, concept formation, and crossdisciplinarity integration.

Although there has been an increasing interest in studying public sector competitiveness, few empirical studies have conducted a detailed analysis of the conceptual development of the field. The majority of prior works tend to be concerned with macroeconomic outcomes and the concept of business competitiveness, whereas the public sector domain-even though becoming increasingly important for understanding global governance and sustainability issues-receives relatively little attention. This is why the present paper seeks to fill the void through a comprehensive bibliometric study that analyzes various aspects related to the issue under discussion, such as the dynamics of publications, author collaborations and changing themes during the years 2015-2024 in the Scopus database.

Methodology

The suggested research employs a bibliometric analysis methodology to investigate the evolution and intellectual architecture of scholarly articles about the competitiveness of public organizations for the last ten years. This methodology is a blend of using bibliometric tools and network visualization techniques to identify patterns of publication, collaboration among authors and knowledge topics. For this reason, the study follows the bibliometric approach described by Donthu et al. (2021) and Aria and Cuccurullo (2017).

Data collection and filtering

The data was sourced from Scopus on 31 October 2025 using the keywords "competitiveness" and "public institutions," which pertained to the title, abstract and keywords of the article. In order to retrieve documents that had scientific significance, the keywords were limited to the type of document, such as Article and Review. The time range considered for searching the documents was between 2015 and 2024. Ten years was considered as a contemporary timeframe.

The inclusion of all subject categories available in Scopus reflects the interdisciplinary approach of the study. As for the further categorization of articles, it was found that most publications relate to the category of Social Sciences (234 papers, 29.8%), Business, Management, and Accounting (117 papers, 14.9%), and Economics, Econometrics, and Finance (91 papers, 11.6%). Moreover, there are studies in the field of Environmental Science, Engineering, Computer Science, Arts and Humanities, Decision Sciences, Energy, and others.

Data processing and analytical techniques

These bibliographic records were extracted from Scopus using the CSV format and then cleaned to ensure the integrity of the data. Entries that contained duplicates had missing author affiliation information, and citations that were not relevant were deleted. The cleaned database was then analyzed using VOSviewer version 1.6.20, which is suitable software for bibliometrics research.

This bibliometric analysis involved various aspects of bibliometric measurement, including documents, authors, countries, and keywords. Document-level analysis was done by applying bibliographic coupling for measuring structural similarities between the documents that use references to the same publications. Author-level analysis included the investigation of co-authorships and collaboration networks, whereas at the country level, information about scientific collaboration was derived. Lastly, the concept of keyword analysis was employed for measuring semantic similarity and identifying the major thematic clusters that defined the subject area under investigation. To provide consistency across all levels of analysis, normalization techniques were implemented in order to minimize the bias caused by different publication volumes across different fields of science. The association strength technique was used to determine the strength of bibliographic links between papers based on their similarities (Van Eck & Waltman, 2017).

Visualization and interpretation

The bibliometric approach was used for constructing visual representations in terms of author co-citations, keyword co-occurrences, and bibliographic couplings, allowing us to find out relevant authors, publications, countries, and relations among them. The quantitative indicators, including total citations, citations per publication and normalized distribution, served as an additional methodological tool, enabling us to get a full picture of the production process, its effectiveness, and collaboration trends. The trend analysis of publications on Scopus during the period of 2015 to 2024 shows a steady, albeit fluctuating tendency, with the highest levels reached in 2017 and 2022. There were 36 publications in 2015, which increased to 47 by 2024, whereas annual citations varied from 150 to 814. The number of publications and citations increased after 2019, reflecting the growing importance of the topic.

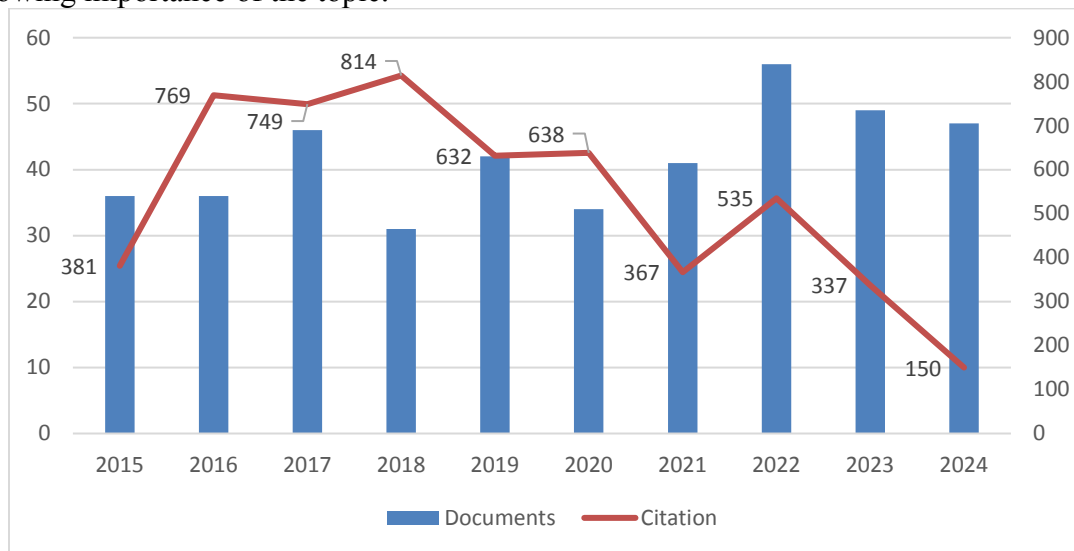


Figure 1. Annual evolution of publications on public institutions competitiveness

Source: Authors' own research based on data extracted from Scopus (keywords: "competitiveness" & "public institutions", data retrieved 31 October 2025).

Distribution per year in terms of number of papers is provided in Table 1 below, highlighting the contribution of each individual year to the total count of 418 papers indexed. It can be observed that the output has risen sharply since 2018, thus supporting the assertion regarding the rising interest in competitiveness of public institutions as a new discipline.

Table 1. Annual share of documents on public institutions competitiveness

Year	Documents	Percentage of Total (%)
2015	36	8.61
2016	36	8.61
2017	46	11.00
2018	31	7.41
2019	42	10.05
2020	34	8.13
2021	41	9.81
2022	56	13.40
2023	49	11.72
2024	47	11.24
Total	418	100.00

Source: Authors' calculation based on Scopus database (October 2025).

Limitations

Although Scopus is a database that provides a wide range of quality sources of scientific information, some regional or non-English periodicals may not be fully represented. In addition, citation analysis methods are by nature time-bound and, therefore, cannot always give the deserved recognition to recent studies that have proved highly influential. Nevertheless, even with these flaws, the chosen approach will provide a fair and complete picture of the area in question.

Results and discussions

Publication trends and thematic structure in Scopus research

Analysis of the literature indexed in Scopus (2015-2024) demonstrates a stable and growing trend towards academic attention to the competitiveness of governmental organizations. From a marginal issue, research on competitiveness has developed into an interdisciplinary field incorporating ideas from several sciences. Research contributions vary significantly in terms of disciplines covered; however, the development of this field as a whole has been strongly influenced by only a few sources.

Regarding the distribution of the documents by Scopus subject areas from the point of view of the discipline, it is possible to identify the interdisciplinary nature of the research area under consideration, which is presented in Table 2. According to the data provided, the most popular fields in the corpus include Social Sciences (29.8%), Business, Management and Accounting (14.9%), and Economics, Econometrics and Finance (11.6%). In total, these areas cover more than half of the articles, which means that the competitiveness of organizations is mostly evaluated from a socio-economic and management standpoint. Meanwhile, the rising prominence of Engineering (5.1%) and Computer Science (5.1%) demonstrates the emergence of innovations in this sphere.

Table 2. Normalized distribution of Scopus-Indexed documents by subject area

No.	Subject Area	Number of Documents	Normalized Percentage (%)
1	Social Sciences	234	29.84
2	Business, Management and Accounting	117	14.93
3	Economics, Econometrics and Finance	91	11.61
4	Environmental Science	42	5.36
5	Computer Science	40	5.10
6	Engineering	40	5.10
7	Arts and Humanities	27	3.44
8	Decision Sciences	26	3.32
9	Energy	22	2.81
10	Other subject areas*	105	13.39
TOTAL		784	100.00

Source: Authors' own research based on Scopus database (October 2025, keywords: "competitiveness" & "public institutions").

Since several codes can be used to classify each record according to Scopus indexing rules, the number of total disciplinary codes (784) is greater than that of unique documents (418). The reason for this lies in the interdisciplinary character of the field of competitiveness studies. Thus, documents classified by the Social Sciences/Economics categories consider the link between institutions and productivity. On the other hand, articles falling within the sphere of Business Management/Engineering explore technological development in the governmental sector. The subject area Other includes numerous other disciplines including Medicine, Psychology, Mathematics, Environment, and Chemistry.

Besides disciplinary trends, the citation pattern of this dataset also reveals some fundamental contributions made to this subject matter. As seen from the most highly cited articles (Table 3), the intellectual grounding of this subject is well captured through the publication of these contributions in some top-rated international journals, such as Journal of Cleaner Production, World Development, and Research Policy. The most highly cited article, authored by Bataille et al. (2018) with 449 citations, looks into the ways to achieve industrial decarbonization that would be consistent with the Paris Agreement, offering a sustainability approach that has been subsequently employed in competitiveness research in the institutional setting.

Table 3. Top 10 most cited documents related to competitiveness and public institutions

No.	Title of the Paper	Authors	Source Title	Year	Citations	Average per year
1	A review of technology and policy deep decarbonization pathway options for making energy-intensive industry production consistent with the Paris Agreement	Bataille, C.; Åhman, M.; Neuhoﬀ, K.; Nilsson, L.J.; Fischeck, M.; Lechtenböhmer, S.; Solano-Rodriquez, B.; Denis-Ryan, A.; Stiebert, S.; Waisman, H.; Sartor, O.; Rahbar, S.	Journal of Cleaner Production, 187, pp. 960–973	2018	449	64.1
2	Competitiveness of small farms and innovative food supply chains: The role of food hubs in creating sustainable regional and local food systems	Berti, G.; Mulligan, C.	Sustainability (Switzerland), 8(7)	2016	281	25.5

No.	Title of the Paper	Authors	Source Title	Year	Citations	Average per year
3	Physical and policy pathways to net-zero emissions industry	Bataille, C.G.F.	Wiley Interdisciplinary Reviews: Climate Change, 11(2), e633	2020	159	26.5
4	Does Institutional Quality Matter for Trade? Institutional Conditions in a Sectoral Trade Framework	Álvarez, I.C.; Barbero, J.; Rodríguez-Pose, A.; Zofio, J.L.	World Development, 103, pp. 72–87	2018	147	21.0
5	Establishing successful university–industry collaborations: barriers and enablers deconstructed	O’Dwyer, M.; Filieri, R.; O’Malley, L.	Journal of Technology Transfer, 48(3), pp. 900–931	2023	144	48.0
6	Challenging the “deficit model” of innovation: Framing policy issues under the innovation imperative	Pfotenhauer, S.M.; Juhl, J.; Aarden, E.	Research Policy, 48(4), pp. 895–904	2019	114	16.3
7	Towards disruptions in Earth observation? New Earth Observation systems and markets evolution: Possible scenarios and impacts	Denis, G.; Claverie, A.; Pasco, X.; Darnis, J.-P.; de Maupéou, B.; Lafaye, M.; Morel, E.	Acta Astronautica, 137, pp. 415–433	2017	102	11.3
8	Decarbonization of natural gas systems in the EU – Costs, barriers, and constraints of hydrogen production with a case study in Portugal	Khawiwada, D.; Vasudevan, R.A.; Santos, B.H.	Renewable and Sustainable Energy Reviews, 168	2022	84	21.0
9	Advancing Women of Color in STEM: An Imperative for U.S. Global Competitiveness	Alfred, M.V.; Ray, S.M.; Johnson, M.A.	Advances in Developing Human Resources, 21(1), pp. 114–132	2019	80	11.4
10	To engage or not to engage with host governments: Corporate political activity and host country political risk	De Villa, M.A.; Rajwani, T.; Lawton, T.C.; Mellahi, K.	Global Strategy Journal, 9(2), pp. 208–242	2019	79	11.3

Source: Authors’ own research based on Scopus data extraction (October 2025, keywords: “competitiveness” & “public institutions”).

The pattern that emerges from the citation clusters in a small number of landmark papers shows that there is some particular work that influences the literature with regard to its relationship between sustainable innovation policies and governance within the public sector. Such examples include Bataille et al., Álvarez and O'Dwyer. These authors discuss the significance of winning through effective policymaking.

International scientific collaboration and citation impact

According to the results of the bibliometric analysis conducted in Scopus during the years 2015-2024, a geographical variety of researches in the sphere of public institutions competitiveness is notable, as well as its geographical concentration (table 4). North America and Europe are among

the most prolific areas where the largest number of scientific studies on the subject matter was performed and published. The United States leads the way in terms of productivity with 37 articles and 668 citations, followed by Russia and Spain. On the contrary, the most visible researches in this field are performed and published in the United Kingdom (1,192 citations) and Germany (805 citations).

Table 4. Top 10 countries by number of documents and citations on public institutions competitiveness

No.	Country	Documents	Citations	Average Citations per Document
1	United States	37	668	18.05
2	Russian Federation	31	226	7.29
3	Spain	28	518	18.50
4	Ukraine	24	114	4.75
5	Brazil	23	219	9.52
6	United Kingdom	15	1,192	79.47
7	South Korea	15	103	6.87
8	Italy	14	379	27.07
9	China	12	55	4.58
10	Germany	11	805	73.18

Source: Authors' own research based on VOSviewer data processing of Scopus records (October 2025), keywords: "competitiveness" & "public institutions", document types: Article and Review.

Figure 2 presents the international co-authorship network for the study of the competitiveness of public organizations. It is evident from the figure that there exists a central pattern of collaboration with the United States, the United Kingdom, Germany, France, and Spain forming the core of international scientific collaboration. Countries such as those identified have developed dense collaboration networks due to established research infrastructures as well as ability to establish international academic collaborations.

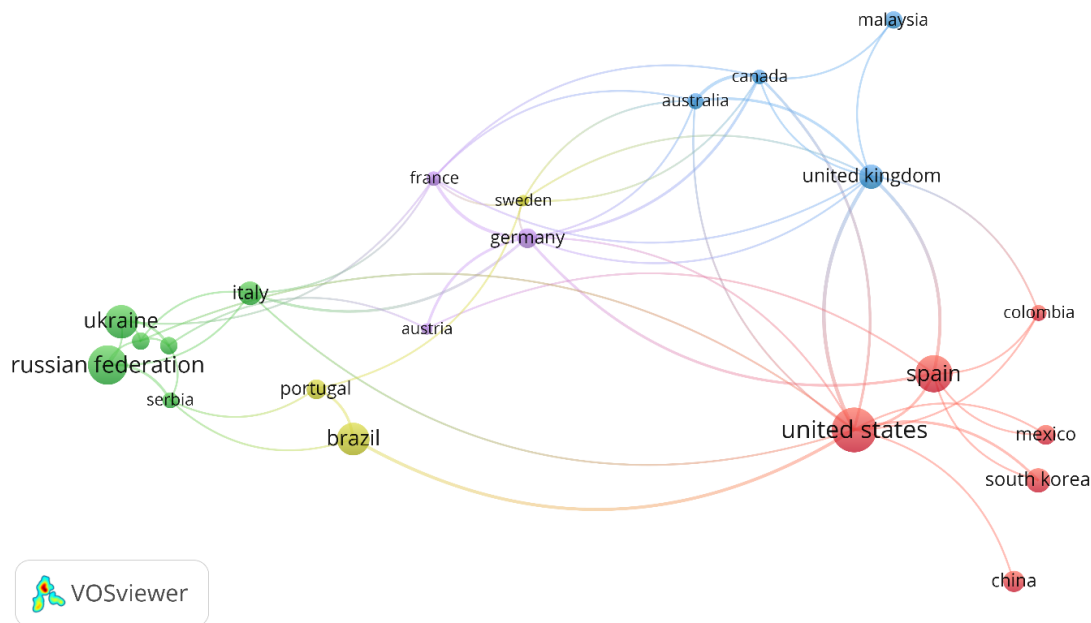


Figure 2. International co-authorship network on public institutions competitiveness

Source: Authors' visualization using VOSviewer based on Scopus data extraction (October 2025, keywords: "competitiveness" & "public institutions").

The structure of concepts related to the topic of competitiveness in public institutions was analyzed using a method of keywords co-occurrence with VOSviewer, which is performed by using author keywords retrieved from Scopus.



The keyword co-occurrence network for the topic of competitiveness of public organizations is shown in Figure 3. There is a strong thematic core consisting of the competitiveness concept, which is closely associated with the concepts of public policy, sustainable development, and economic growth. In addition, there is a secondary cluster of keywords, including the concepts of innovation, governance, and human capital, showing the managerial and institutional approach to the competitiveness issue in public organizations. The third group emphasizes higher education and human issues as critical aspects in today's competitive environment.

Table 5. Most frequent keywords related to “Competitiveness” and “Public Institutions”

No.	Keyword(s)	Occurrences
1	Competitiveness	66
2	Innovation	33
3	Higher education	25
4	Human	19
5	Competition	17
6	Education	12
7	Article / Public sector / Institutions	11
8	Humans / University sector	10

Source: Authors’ own analysis using VOSviewer based on Scopus data (October 2025, keywords: “competitiveness” & “public institutions”).

As shown in Table 5 below, the most common keyword is competitiveness (66 times), followed by innovation (33) and higher education (25). Other keywords include human, competition, education, public sector and institutions, thus demonstrating the multi-dimensional aspect of competitiveness within the context of governance and public administration. In other words, the topic includes not only economic efficiency but also education, innovation potential and human development.

Thus, the analysis supports the results obtained by previous researchers showing that competitiveness studies in the public sector have shifted towards the integration of economic, social and institutional performances, as suggested by bibliometric data presented in Aria & Cuccurullo (2017) and Donthu et al. (2021).

Bibliographic coupling analysis

The study used bibliographic coupling to identify articles that share similar referencing structures as an indication of themes and methodologies similarities in the field of competitive institutions. The results obtained were analyzed using the VOSviewer software tool, which allowed for the identification of important articles as well as the intellectual relationships between them.

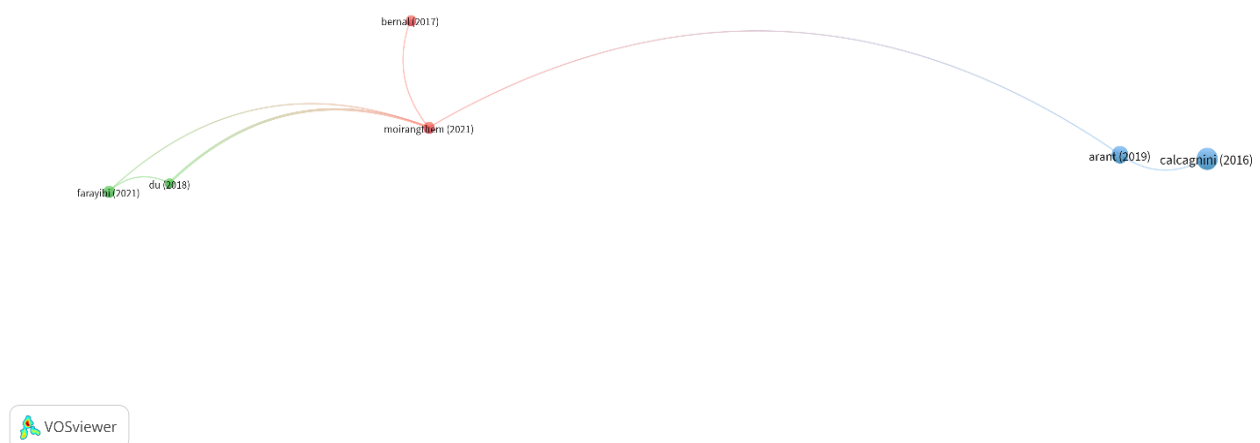


Figure 4. Bibliographic coupling map of documents related to the competitiveness of public institutions (2015–2024)

Source: Authors’ own visualization using VOSviewer, based on Scopus data.

Figure 4 shows the bibliographic coupling among high-cited documents regarding the competitiveness of public institutions. In terms of its structure, the network exhibits low density,

consisting of a few loosely linked documents without a central nucleus. A couple of coupling references is detected between chosen sources, for instance, between Calcagnini (2016) and Arant (2019), Bernal (2017) and Moirangthem (2021), and Du (2018) and Farayibi (2021).

This lack of connections between the document clusters means that the research on the competitiveness of public institutions is not yet consolidated and that influential works arise simultaneously but independently from each other. The fragmented development of scientific findings indicates the infancy of the studied area and the interdisciplinary interaction among scholars, during which citation behavior is still forming and could eventually lead to bibliographic convergence (Van Eck & Waltman, 2017).

Table 6. Most cited documents identified through bibliographic coupling

No.	Document	Citations
1	Bataille (2018)	449
2	Berti (2016)	281
3	Bataille (2020)	159
4	Álvarez (2018)	147
5	O'Dwyer (2023)	144
6	Pfotenhauer (2019)	114
7	Denis (2017)	102
8	Khatiwada (2022)	84
9	Alfred (2019)	80
10	De Villa (2019)	79

Source: Authors' own analysis using VOSviewer based on Scopus data (October 2025, keywords: "competitiveness" & "public institutions").

As indicated in Table 6, the most influential and relevant articles include Bataille (2018) with 449 citations and Berti (2016) with 281. In conjunction with Bataille (2020) and Álvarez (2018), these articles make up the core of knowledge in this domain, with themes such as sustainability, institutional effectiveness, and governance innovations explored. It is evident that the importance of these articles is driven by the new direction that the study of competitiveness is taking in terms of the environment and organizations.

Conclusion

The suggested bibliometric analysis provides an opportunity to study the systematic transformations that have taken place in the study of competitiveness of public organizations during the period from 2015 to 2024. The results of the study are supported by information retrieved from 418 papers listed in the Scopus database. Based on the dynamics of publications revealed in Figure 1 and described in Table 1, it can be concluded that the rapid increase in the number of publications since 2019 proves that competitiveness has become one of the key issues for researchers studying public administration and governance.

Social Sciences, Business, Management and Accounting, and Economics, Econometrics and Finance are dominating among subject categories while increasing contribution of Engineering, Computer Science, and Environmental Sciences proves that competitiveness of public institutions is an interdisciplinary phenomenon. With respect to geography, the dominance of the United States, the United Kingdom, and Germany characterized by relatively low publication output but high citation influence can be noticed according to data from Tables 3 and 4. The pattern of international collaboration shown in Figure 2 proves that the phenomenon under investigation

became increasingly global including contributions from the Russian Federation, Ukraine, Brazil, and South Korea.

The findings of keyword co-occurrence analysis and bibliographic coupling suggest the existence of four distinct conceptual clusters associated with innovation and sustainability, quality and governance, university-industry collaboration, and policy effectiveness. It should be noted that the identified conceptual clusters confirm the multidimensional character of competitiveness in the context of the public sector, illustrating the growing importance of social, technological, and environmental aspects of this concept apart from its purely economic meaning.

Methodologically, the research proves the potential of bibliometric mapping as an important tool for analyzing intellectual structures and knowledge gaps in complex research fields. In this sense, the use of such visualization software as VOSviewer and quantitative characteristics provides an insight into the evolution of scientific communities.

This investigation might be further developed by taking into account additional information resources, for example, Web of Science or Dimensions, while adopting longitudinal and qualitative approaches to analyzing the competitiveness of institutions from a broader perspective. Moreover, the investigation of in-depth case studies on particular countries or regions may offer essential insight into the impact of certain policies and administrative capabilities.

In general, this research has made an important contribution to the existing literature by providing a modernized summary of scientific research concerning the competitiveness of public institutions around the world. Backed up by the results obtained from the analyses presented in figures and tables above, this paper emphasizes the increasing role of evidence-based management in modern times.

Funding: This research was supported by the ISI Program Type 1 Grants for “Improving the Quality of Advanced Scientific Research at Politehnica University of Timisoara”.

Acknowledgments

During the preparation of this work, the author utilized ChatGPT 4 to enhance readability and language clarity. Following the use of this tool, the author meticulously reviewed and revised the content as necessary and assumes full responsibility for the final content of the publication.

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