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Review

Governability and governance: A scientometric review

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Abstract: Currently, important efforts are being made to improve governability and governance by combining the monopoly of state decisions with the collaboration of diverse actors in public practice. Based on the above, the purpose of this article is to analyze the evolution of conceptual approaches to both terms over the last 23 years, examining scientific production by author authors, journals, and countries. The methodology was based on a bibliometric analysis: First, the WoS and Scopus databases were searched. Subsequently, scientometric techniques and the Science Tree methodology were used to identify patterns, structures, and trends, to understand the progress and behavior of scientific production, and to measure the quantity and quality of research that has addressed these issues from different perspectives. This study examined governability and governance publications and their annual citations to assess their impact and analyzed the total output of both datasets to identify similarities and differences in governability and governance research. The findings reveal that the number of publications and citations in this field is increasing, with the United States being the most academically influential country and the journal Marine Policy being the most prominent in ranking. These data provide key information for decision-makers, researchers, and academics for future debate and discussion toward operationalizing the concepts at the practical level of action, management, and the functioning of government structures.

Keywords: governability; governance; scientometric analysis; biblioshiny; tree of science

1. Introduction

In recent decades, contemporary societies have witnessed the destabilization of traditional governmental methods, reflecting challenges in terms of governability. This change has led to a transition of the concept of governability to a more robust form, resulting in the emergence of new approaches and modes of governance that involve not only government but also civil society and local communities in decision-making processes to address problems related to the capacity to govern. However, there remains a significant difference in approaches to governability and governance, which highlights the importance of understanding these concepts in their totality and complexity. Governability is defined as "the degree to which relationships between strategic actors are governed by stable and mutually acceptable formulas" (Coppedge, 2002). This concept has been permeated by the emergence of new dynamics in relations between government and opposition, as well as between the various branches of government and civil society, made making it difficult to maintain a stable and functional political and social environment. From a state-centered perspective, governability refers to the institutional capacity to design and implement policies that are effective and socially acceptable (Nieto-Rodriguez and Restrepo-Medina, 2020). Aguilar (2007, 2010) argues that the

concept of governability focuses exclusively on government, relating it to its capacity and behavior. This perspective views government as the sole key actor responsible for guaranteeing order and solving social problems. Frosini (2014) adds that representativeness, particularly through voting, plays a crucial role in governability. Voting should not only elect parliamentary representatives but also decisively contribute to the investiture of the government. Hence, the structure of the voting system should support the formation of a solid, stable, and functional government.

In this context, governability is assumed within the framework of governance because it requires the action of a capable and effective government that works jointly with local communities and civil society at the local, regional, national, and transnational levels. Governance is considered a key topic within the field of social studies and state dynamics because it involves the use of democratic mechanisms and institutions that promote the coordination of social interests. When choosing modes of governance, it is essential to consider the particularities of both the system to be governed and the governing system due to the fact that each mode of governance should be interpreted as the ruler's response to the specific challenges and opportunities of the citizenry, in this sense, the transition of modes of governance observed in many cases reflects how governance actors attempt to address the dynamics of the system (Chuenpagdee and Jentoft, 2015b). According to the studies, governance involves a shift from a centralized model of government to a broader system in which resources from both the state and the private sector and society at large are involved and activated. Instead of a centralized hierarchical approach, it is characterized by an interdependent and associated style of governing between government entities, private organizations and social groups (Aguilar, 2007, 2010).

The evolution of conceptual approaches to governability and governance has been remarkable over time. Initially, governability focused on the government's capacity and behavior to fulfill its functions, but over time, it was expanded to consider the interaction of various actors, such as civil society, local communities, and the private sector in decision-making processes to strengthen the State-citizen relationship. On the other hand, the concept of governance has emerged with a more holistic approach, seeking to improve the interaction between the multiple actors of society and to fortify the government's capacity in the management of public affairs. This evolution has led to a broader understanding of how power is exercised and decisions are made in contemporary society.

This paper assumes governance as a system that is driven by public agents and non-state actors, who interact collaboratively with each other to develop, implement, and coordinate policy interventions under consensus (Ansell and Gash, 2008; Peters et al., 2022).

As a complement to previous research with similar objectives, this study arises from the need to analyze the scientific production in the field of governability and governance, as well as to examine its main developments. To date, however, there has been no systematic review of the literature that includes a comprehensive scientometric analysis of the interweaving of governability and governance. Therefore, the main purpose of this study was to identify, select, classify, and

prioritize the scientific literature related to the development of these concepts through the application of scientometric techniques. To achieve this, the search for equations on governability and governance in the Web of Science (WoS) and Scopus databases was used to analyze the scientific production, extracting all the records and references cited. Subsequently, the results obtained from the search were merged into a single dataset, which was then subjected to the Tree of Science (ToS) methodology. Finally, a scientometric analysis was carried out in order to understand the trends and behavior of scientific production at the global level. Therefore, the main focus of this article addresses the following research questions:

Question 1: What are the main challenges identified when exploring the concept of governability and governance from a scientometric perspective?

Question 2: What are the most influential journals, countries, and authors in the field of governability and governance, analyzed through scientometric techniques?

Question 3: What are the main advances and contributions that the application of scientometric techniques has provided to the study of governability and governance?

A scientific mapping was carried out that included citation analysis and a detailed description of the annual scientific production, covering countries, journals and authors, in addition to using the results obtained from the search in both databases. The remainder of the paper is divided into the following sections: Section 2 presents a general experimental design and describes the methodologies used. Section 3 performs a scientometric analysis and presents the most relevant results, which are structured according to the analogy of the Tree of Science, showing the documents that make up the roots, trunk and branches. Section 4 examines the results derived from the scientometric analysis and Section 5 presents the conclusions obtained.

2. Materials and methods

In this article, a methodological approach based on bibliometric and scientometric analysis was used to identify significant research on governability and governance. The data for this analysis were obtained from the WoS and Scopus databases. These databases contain a large number of scholarly records, all subjected to rigorous blind peer review processes (Zhang et al., 2024). Integration of these records is accomplished through tools such as Bibliometrix and the Tosr processing package, which facilitate the merging of core records such as cited references. By combining these datasets, an overview of the current research landscape in the field of governability and governance is obtained, which facilitates its scientometric and bibliometric analysis, including the annual production of articles, the impact of scientific literature, the study of citation networks, the impact factor of journals, and collaboration between different actors; Therefore, the combination of both databases promotes a more complete and holistic understanding of research in this field, and this article highlights the most significant contributions that this line of knowledge brings to governability and governance.

2.1. Search strategy

The search was performed using the WoS and Scopus databases. In order to analyze relevant publications, a detailed and complete scientometric work process was developed. Within the thematic field, the main search keywords were "governability" and "governance" and the equations consulted were (ALL (governability) AND ALL (governance)) AND PUBYEAR > 1999 AND PUBYEAR < 2025 AND (LIMIT-TO (SUBJAREA, "SOCI")) AND (LIMIT-TO (DOCTYPE, "ar")) and governability (All Fields) and governance (All Fields). This led to the identification of 428 records in WoS and 1788 records in Scopus; merging the datasets yielded 1921 records. **Table 1** shows the search parameters used. The results from both databases were merged using the bibliometrix R package for the main information and Tosr for the references. The complete dataset included 1921 records since 295 publications that were duplicate articles were eliminated, and articles that were not directly related to these fields, as well as those without original research or empirical data, were automatically excluded. This exclusion ensured that they only covered publications from 2000 to date, which allowed us to obtain more current patterns, trends, behavior, advances, and contributions on governability and governance. This helped to maintain relevance and ensure that the research was directly related to the field of study.

This result indicates that almost all articles related to governability and governance are found in Scopus, representing 96.68% (1921 records), while book chapters constitute only 2.67% (53 records). This finding is relevant because it highlights the preeminence of scholarly articles over book chapters, early access, and proceedings papers in governability and governance research.

In this article, all Scopus and WoS variables were considered, which guaranteed a rigorous and detailed data analysis to understand the main contributions in the field of governability and governance.

Table 1. Search parameters used in both databases.

Database	**Web of Science**	**Scopus**
Time of search	2001–2024	2000–2024
Search date	3 March 2024	
Type of document	Article, book chapter, early access, proceedings paper	
Search field	All	
Search words	"Governability, governance"	
Results	428	1788
Total (Wos + Scopus)	1921	

The scientometric analysis conducted in this study is divided into two phases. The first phase provides an overview of research on governability and governance, including a comprehensive analysis of scientific production, countries, journals and most influential authors. This perspective presents the most relevant findings and trends to readers and provides them with a broad understanding of the current state of this research topic.

The second phase examines the evolution of the various contributions to the field of governability and governance, using the Tree of Science (ToS) metaphor. The article selection process as a reference for this study is described in the PRISMA diagram in **Figure 1**. The pre-processing step is crucial to carry out the data analysis. The method was implemented using R developed by Core of Science, which allows detailed and sophisticated analysis by extracting key data from the references and eliminating missing values. As a result, a file containing 22 spreadsheets was obtained, which were analyzed with Python and R.

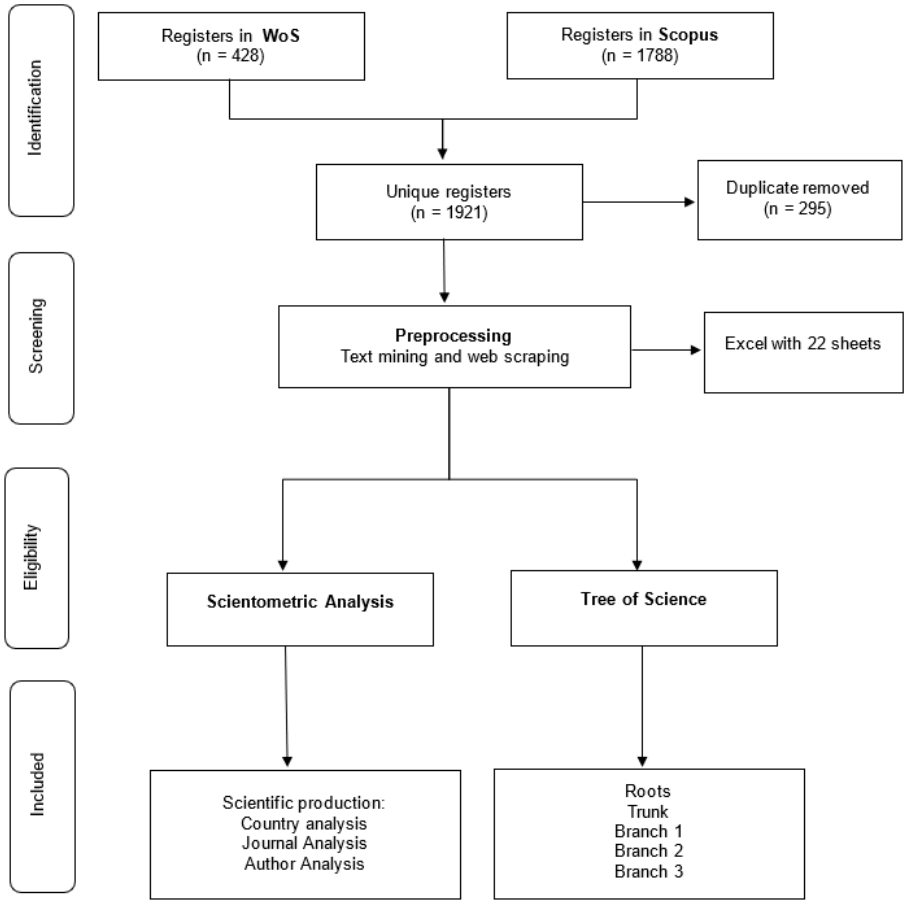

Figure 1. PRISMA flow chart.

2.2. Scientometric analysis

Scientometrics is a frequently used form of bibliometrics. It is defined as the quantitative analysis of scientific production in terms of its structure, dynamics, trends and relationships of scientific practice (García-Lillo et al., 2015). This article focuses on four main areas: Scientific production, country, author, and journal. Scientometrics is widely used to explore intellectual structure at the general level (Nieto-Rodríguez and Restrepo-Medina, 2020), conduct a thorough analysis of collaborative networks (Abbasi et al., 2011) and (Robledo et al., 2022), and evaluate citations received (Do Carmo et al., 2023) and (Hurtado-Marín et al., 2021). To determine the contributions of governability and governance, the scientometric analysis begins by assessing the annual scientific output and publication levels of leading countries and journals presenting advances in these fields. Subsequently,

collaboration between actors is examined; the most productive actors are represented in a table and a graph illustrating their relationships. All these analyses were carried out using the statistical package RStudio and its complementary package Bibliometrix, while the visualizations were performed using the graph package R and Gephi. This analysis is based on evaluating the unified WoS and Scopus database, using explanatory clusters for interpretation.

2.3. Tree of Science (ToS)

Tree of Science, commonly known as ToS, is an algorithm that employs the Tree of Science analogy to represent scientific articles. This tool generates a compact and selected list of citations from a larger set of references (Zuluaga et al., 2022). This methodology has been widely used in different optics, such as water governance (Aguirre and Cuervo, 2023), topic modeling (Grisales et al., 2023), and business (Valencia-Hernandez et al., 2020), among others. Using graph theory metrics, this tool represents the papers in a field of knowledge as a tree (Limaymanta et al., 2020). The method considers each article as a node in a tree and uses citations to establish the connections between nodes. ToS excels at classifying fundamental papers at the tree's roots, articles that provide structure and drive growth in the area at the trunk, and those that represent subfields or recently published papers in branches of the research topic. In addition, it removes publications that do not contain citations or references to other work, which purifies the network.

Recently, the Corporation Core of Science has released two platforms to generate ToS using databases such as WoS and Scopus. However, the Tosr package and a new code were used for preprocessing the data in this study. The updated ToS algorithm, known as SAP (Zhang et al., 2024), which replicates the tree-sapping process, was used. This version was used to assess the relevance and core elements and review the progress and contributions of governability and governance between the years 2000 and 2024, presenting the findings.

3. Data analysis and results

3.1. Scientometric analysis

This section presents a descriptive analysis of governability and governance issues using scientometric techniques. Four main aspects are examined: Scientific production, analysis by country, journals, and author analysis.

3.1.1. Scientific analysis of annual scientific production

The analysis of annual scientific production is fundamental to understanding the evolution, trends, and exponential growth (Dilla Alfonso, 2001) of a research area, while the citations received by an article indicate its preeminence within the academic community (Grisales et al., 2023). Contrasting the output between databases such as WoS and Scopus is crucial to understanding and identifying the advantages and constraints of each. This article examined publications on governability and governance between 2000 and 2023, assessing their impact through annual citations. In addition, the total output of both datasets was analyzed to identify the most prolific subject areas within the research field.

Figure 2 illustrates the evolution of the production of articles related to governability and governance issues. As can be seen in the figures, the research produced in this field has experienced remarkable growth in the last 23 years, with a significant number of articles produced, especially highlighting a steady increase. The initial papers published in 2001 received the highest number of citations due to the fact that they were the pioneers in addressing these particular topics. From 2015, the process of constant production began, reaching a total of 1102 articles in Scopus. During this period, the growth rate in the number of publications in WoS was 74%, while in Scopus, it was 62%. Finally, we classified the evolution of production in three phases: Initial growth, rapid development, and stability; these phases will allow us to understand the different stages in the field of governability and governance throughout the evolution of the concept over time (see **Figure 2**).

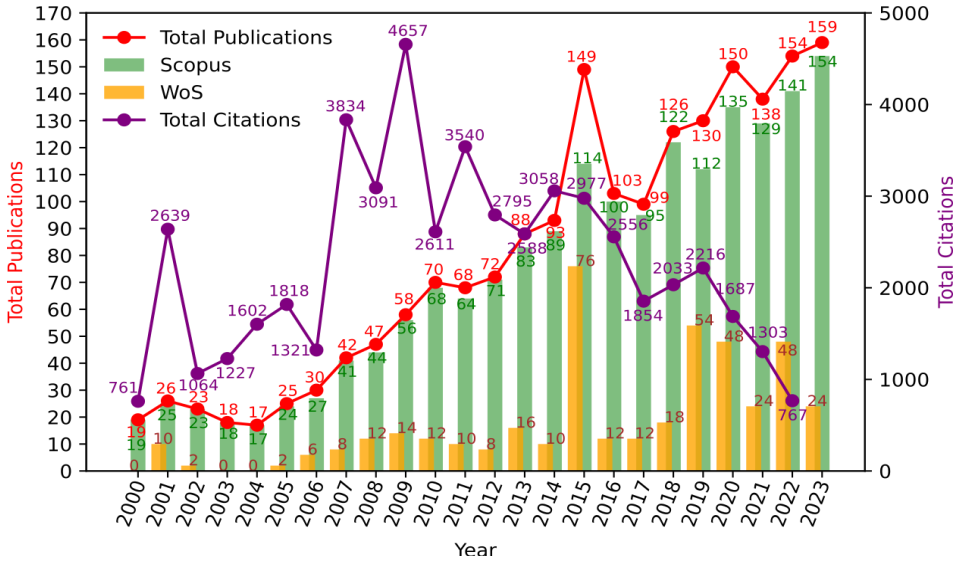

Figure 2. Measurement of total production vs. total citation trends.

Initial phase of the development databases (2000–2008): During this period, a total of 247 publications were registered, representing 13% of the total. WoS and Scopus contributed 40 and 238 publications, respectively. This discrepancy is due to the fact that WoS did not publish articles on the topics of governability and governance in 2000, 2003, and 2004, unlike Scopus, which has maintained constant publication since 2000. However, both databases experienced growth from 2007 onwards. Out of a total of 1,904 publications between 2000 and 2023, citations obtained during this initial period constitute 33% (17,357) of the total citations, suggesting a delayed impact, given that citations are generated after publication of the articles. To examine this initial phase, it is crucial to note that the evolution of publications is related to governability resources (Le Galès, 2001), urban governance (Bouckaert et al., 2002), local governance (Papadopoulos et al., 2024), multilevel governance (Marsh, 2005), democratic governability and governance (Kemp et al., 2005), sustainable development and governance (Bjørn Stokke and Hovik, 2007), network governance (Goetz, 2008), and governance and governability issues (Chuenpagdee and Jentoft, 2009). These data are significant, because they reflect a growing interest and debate on the subject (see **Figure 2**).

Rapid development phase (2009–2021): Starting in 2009, there was a notable increase in the total number of publications and citations, with 1344 publications, representing 71% of the total number of publications (1904). Citations also increased, reaching 33,875 citations, representing 65% of total citations. The average growth of publications was 5%, and the total number of citations peaked during 2009 (see **Figure 2**). The most cited article was by the authors (Chuenpagdee and Jentoft, 2009), which addresses the challenges of the coastal and fisheries governance system. This paper points out that the limits of governability are determined by both the nature of the system and the problem that such a system must face, which underscores the need to examine its governability (Jäntti et al., 2023).

Stability phase (2022–2023)**:** During the last two years, stabilization has been observed in the total production of articles and in citation trends. There were 313 articles, representing 16% of the total. However, the total number of citations received decreased due to the delayed effect of this variable, with a percentage growth of 1% (see **Figure 2**). The most cited article was by Jäntti et al. (2023), highlighting the need to consider citizen participation in government as a fundamental governance and management issue. That is, the active participation of citizens should be seen as a central and key element for decision-making processes in government.

3.1.2. Country network analysis

Numerous publications and applications were produced globally to address governance issues and new governability. A comprehensive analysis was conducted that examines the production, impact and quality of a country's research. In addition, a collaborative network was developed to understand the communities generated by research interactions. It also highlights the significant engagement of researchers from different countries in the exploration of these topics, as evidenced by the 32,648 citations found in scientific journals from just 10 countries (see **Table 2**). This reflects a clear demand from the academic community in general better to understand the most productive areas of governability and governance.

The United States is the country with the highest number of publications, reaching a total of 203, equivalent to 10.77% of publications in journals that meet the highest quality standards, and has 7843 citations representing 17.29%. This number surpasses countries such as the United Kingdom, the Netherlands and Canada in this regard. Of these 203 publications, 73% (123) were published in top-ranked journals in the first quarter, 18% (31) in the second quarter, 5% (8) in the third quarter and 4% (6) in the fourth quarter. Of particular note is the research of Robbie Waters, who considers the study of governance as an art form of government. He suggests that future studies on governability and governance should focus on empirical testing and inductive explorations to make the studies more relevant and meaningful (Kooiman, 2016).

As for the Netherlands, 125 publications were identified, representing 6.63% of publications in journals that meet the highest quality standards, distributed in 73 publications in the first quarter, 18 in the second quarter, 2 in the third quarter, and 1 in the fourth quarter, with a total of 5742 citations. On the other hand, the United Kingdom has a total of 169, representing 8.97% of scientific publications, distributed

in 82 in the first quarter, 38 in the second quarter, 10 in the third quarter, and 5 in the fourth quarter. The high number of citations compared to the countries previously analyzed stands out, with a total of 6718 citations, surpassing the Netherlands in this respect. In addition, Canadian researchers have also contributed to the topic of governability and governance with 116 publications, equivalent to 6.16%, distributed in 59 in the first quarter, 15 in the second quarter, 7 in the third quarter, and 2 in the fourth quarter, and have received a total of 4190 citations from other researchers. Of particular note is the article by author Kooiman (2016), who explains that governability is the general quality of governance in any social entity. This governance is divided into three components: The system to be governed, the system of government, and the system of interactions between the two. This author argues that diversity, complexity, dynamics, and scale are crucial variables affecting social entities' governability and governance. In this context, the state, the market and civil society play important roles (Kooiman, 2016).

Brazil appears with 110, representing 5.84% of the total production, distributed throughout the four quarters and has received 669 citations in academic media, placing it in the fourth country in terms of citations. Biermann (2007) identifies five key challenges for research on the governability and governance of the Earth system, which are crucial for studying global change: (1) the structure and organization of global-level governance, (2) the participation of non-state actors, (3) the adaptability of governance modes, (4) accountability and legitimacy, and (5) allocation modes in Earth system governance. Spain, on the other hand, registers 105, which is equivalent to 5.57% of publications, with 30 in the first quarter, 10 in the second, 19 in the third, and 18 in the fourth, and has been cited 973 times. Norway, on the other hand, has 84, representing 4.46% of the total number of publications, with 49 in journals in the first quarter, 8 in the second, and 2 in the third, obtaining a total of 2055 citations. As for Australia, 69 have been registered, which is equivalent to 3.66% of publications, 37 in Q1, 13 in Q2, 3 in Q3, and 1 in Q4, and has received 1503 citations in academic media. Mexico has contributed 59, representing 2.97%, of which 12 correspond to Q1, 7 to Q2, 8 to Q3, and 6 to Q4, and has received a total of 299 citations. Lastly, Germany added 97, equivalent to 5.15% of the total number of publications, distributed in 44 in the first quarter, 20 in the second, 11 in the third, and 1 in the fourth; the high number of citations in comparison with Brazil, Spain, Norway, Australia and Mexico is noteworthy.

This analysis focuses on analyzing ten countries with the aim of identifying those that stand out for their number of research, publications, and citations in scientific media. As a result, a total of 1134 relevant publications have been identified among the 10 countries examined.

Table 2. Production, impact and quality in countries.

Country	**Production**		**Citation**		**Q1**	**Q2**	**Q3**	**Q4**
Usa	203	10.77	7843	17.29	123	31	8	6
United Kingdom	169	8.97	6718	14.81	82	38	10	5
Netherlands	125	6.63	5742	12.66	73	18	2	1
Canada	116	6.16	4190	9.24	59	15	7	2

Table 2. (*Continued*).

Country	Production		Citation		Q1	Q2	Q3	Q4
Brazil	110	5.84	669	1.48	19	15	26	20
Spain	105	5.57	973	2.15	30	10	19	18
Germany	97	5.15	2656	5.86	44	20	11	1
Norway	84	4.46	2055	4.53	49	8	2	0
Australia	69	3.66	1503	3.31	37	13	3	1
Mexico	56	2.97	299	0.66	12	7	8	6

3.1.3. Journal analysis

As evidenced in **Table 3**, the journals Marine Policy and Maritime Studies are the most influential and stand out for their notable number of publications in the field of governability and governance, according to the Scopus database with 115 and 54 publications, respectively, and ranked Q1. Both journals adopt interdisciplinary approaches to these topics. However, regarding impact factor, they rank in an intermediate position compared to other journals such as Public Management Review, Democratization, and Public Administration. It is observed that most of these publications are equally related in functional ocean governability and governance (Biermann, 2007) and governability through network-based marine spatial planning (Koch, 2013). On the other hand, Interactive Governance for Small-Scale Fisheries: Global Reflections stands out as the journal with the highest number of publications in the WoS database within this top ten group, addressing challenges and opportunities related to the topic of governability and governance (see **Table 3**).

Table 3. Main journals covering the concepts.

Journal	Wos	Scopus	Impact Factor	H-Index	Quantile
Marine Policy	24	115	1.03	115	Q1
Maritime Studies	6	54	0.8	24	Q1
Journal Globalization, Competitiveness and Governability	0	52	0.16	7	Q3
Interactive Governance for Small-Scale Fisheries: Global Reflections	68	0	–	–	–
Sustainability (Switzerland)	0	30	0.66	136	Q1
Public Administration	0	19	1.56	105	Q1
Democratization	0	14	1.79	63	Q1
Local Government Studies	2	13	0.77	50	Q1
Public Management Review	2	13	2.16	87	Q1
Revista Venezolana De Gerencia	0	13	0.26	13	Q3

Figure 3 shows the nodes and links over time, which are generated by the citation network between different journals in the field of governability and governance, where larger nodes represent a higher degree of citation. The analysis of the journal citation network was carried out using data collected from WoS and Scopus. In this network, each journal is represented as a node, and the connections between them are visualized as edges. Remarkably, the network reveals three main publication communities. The first scholarly community (in lilac) focuses on the

transition from governability to governance, as well as the principles of good governance (Bassoli, 2010), with journal governance being the most influential in this field. A recent study in this journal highlighted the increasing importance of interactive and collaborative forms of governance; presenting a broad definition of public-private concertation, considering it as a flexible form of governance that can transcend the differences between network governance and participatory governance (Chuenpagdee and Lorenzi, 2020). The second community (in orange) focuses on governance mechanisms, governability, decision making and institutional framework, with the European Journal of Political Research, Utilities Policy, Science of the Total Environment being the most relevant. A recent study in the latter journal mentioned that governance theory postulates that governability depends on the capacity of government and the overall quality of the system to be governed, while governance emphasizes the importance of participation in decision making and collaboration between government, local communities and civil society, which is closely related to the field of governability and governance (Jentoft et al., 2007). The last community (in green) focuses on governance and governance, with the journals Marine Policy, Environmental Science and Policy, and Ecology and Society being the most prominent in this field (see **Figure 3**).

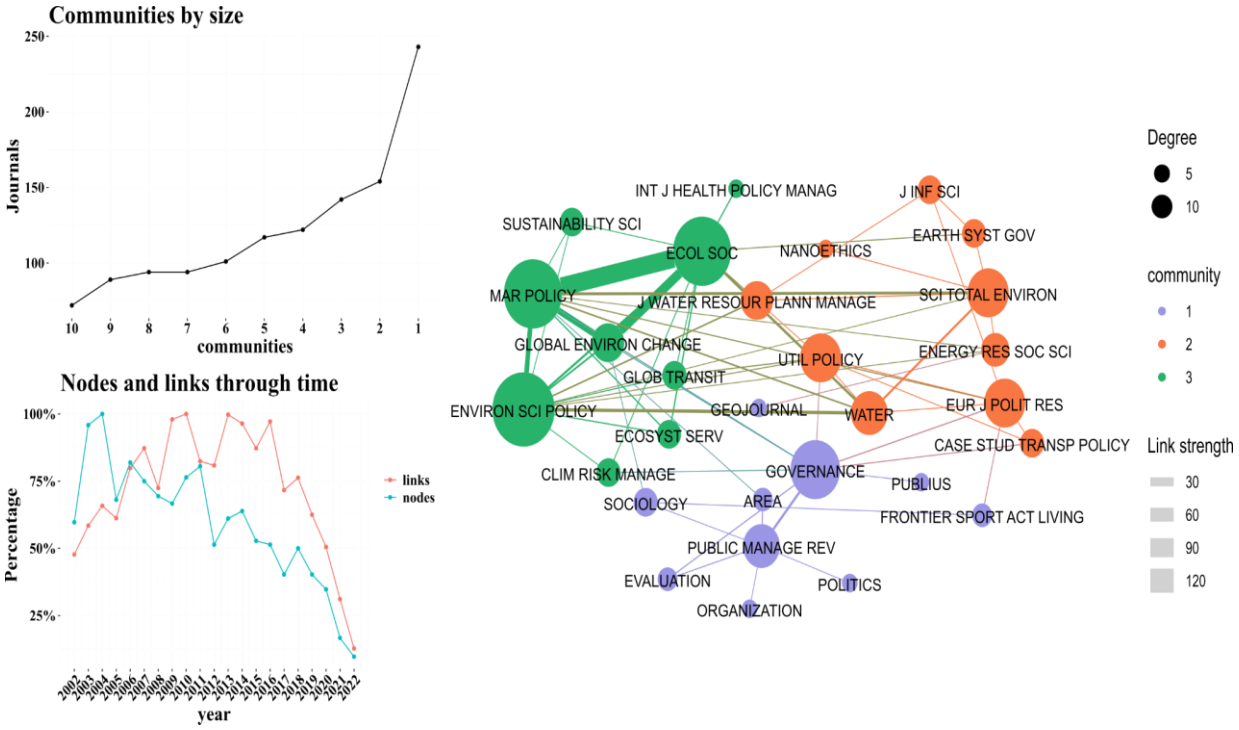

Figure 3. Network of journal citations that address the concepts.

3.1.4. Author analysis

Figure 4 shows the most productive authors according to WoS and Scopus. The analysis reveals the existence of four groups of components in the academic collaboration networks among the top authors. It is surprising to note that, of the top ten researchers, only four components were generated. The first set of components represents a personal social network created by sociologist Jentoft (2007) and its publication (Chuenpagdee and Jentoft, 2015a); who is affiliated with ITU—The

Arctic University of Norway. He is the most active and productive author in the group, with 38 published papers and an h-index of 44. This network includes researchers such as: Bavinck et al. (2015) and Chuenpagdee and Jentoft (2015a), focusing research on governability and governance of marine resources. The second component describes the personal network of Professor Torfing Jacob, a member of the Department of Social and Business Sciences at Roskilde School of Governance, he has collaborated with researchers such as Sørensen and Torfing (2021) and his research focuses on governance network analysis, metagovernance, governance theory and collaborative approaches to decision making, he has published 10 papers and has an h-index of 39 (see **Figure 4**).

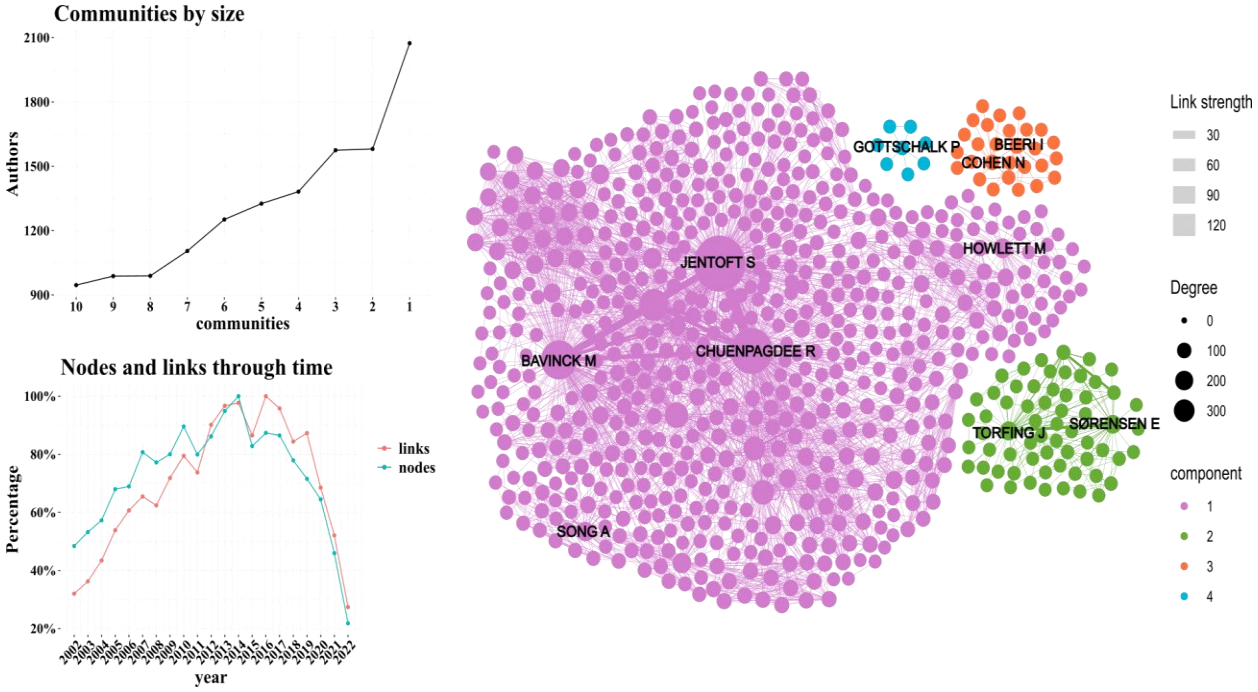

Figure 4. Academic network of the best authors.

3.2. Tree of Science (ToS)

The network study facilitated the identification of the most important documents. For their evaluation, the records with the highest indicators were selected and organized using the metaphor of the Tree of Science: Root (classic), trunk (structural) and branches (recent).

3.2.1. Root (classic)

During the 1980s and 1990s, market-based governance techniques were the preferred alternative to government hierarchy. However, in recent years, this preference has shifted to network governance. This transition reflects the argument that traditional hierarchical government approaches are inadequate for addressing contemporary issues, which often span multiple sectors and involve various actors, making them difficult to manage through hierarchies (Howlett & Ramesh, 2014). Kersbergen and Waarden (2004) identified early studies on the roots of governance, noting that as traditional national political institutions extended to other levels,

sectors, and organizations, a common concern emerged regarding governability challenges.

According to Kooiman et al. (2008), in order to assess governability, it is fundamental to understand how socio-political actors as individuals, but also as social and governance entities, such as organizations, groups, movements, or other coagulated forms of collective action, participate in government interactions. On the other hand, Aguilar Villanueva (2023) describes public governance as encompassing two domains, a substantive one, which directs society, and an instrumental one, which governs the public administrative entities through which government exercises its authority. In both spheres, governance must combine the institutional properties of legitimacy with the cognitive, technological, and managerial characteristics of effectiveness.

In a number of countries, both government and society have undergone significant change in recent years, moving towards "smaller government" and "broader society". This development has experienced the value of the notion of interactive governance (Edelenbos and Van Meerkerk, 2016). The ability of a society to govern at the subnational, regional, local, functional, and industrial levels determines its governability at the national level. In Europe, governments seem to face a shortage of authority and resources, which mainly explains why democracy governability problems are more urgent in Europe than in other Trilateral Commission regions; the weakening of authority across society also weakens the authority of government (Crozier et al., 2012). In the context of interactive governance, the concepts of governability and governance have gained relevance, as it has been shown that no single form of governance is effective in all situations (García-Lorenzo and Varela-Lafuente, 2019). On the other hand, according to what is known as "interactive governance theory," governance is fundamentally a relationship between two systems: "A governing system" and a "system to be governed." The former system is social in nature, with institutions and management mechanisms. The latter system is partly natural and partly social. The relationship and interaction between the governing system and the system to be governed, which forms a system in its own right, should be of concern. According to governance theory, both systems and their interactions are diverse, complex, dynamic and susceptible, which raises serious concerns about their ability to govern; one or all of the systems may have constraints on what the governing system can do, but such limits are themselves problems of planning and institutional design (Mayntz, 1993).

The governance approach in political science provides a renewed view on the role of the state, both domestically and internationally. Globalization, internationalization and the growing influence of networks in domestic politics require a re-evaluation of notions about the strength of the state and its role in society (Pierre, 2000). The work of Amore and Hall (2016) is also relevant, noting that governance management analysis provides insight into planning and policymaking practices that impact tourism and destinations. In particular, the application of governance concepts is inevitably linked to a specific set of value assumptions that predetermine their scope and application.

3.2.2. Trunk (structural)

The terms governability and governance are gaining relevance in theoretical debates as well as in political and social practice, as they introduce a new approach to the management of public policies. In political science, governance has many meanings and uses. Broadly speaking, governance refers to the creation or direction of rules and regulations (Kjær, 2014). Governance is increasingly mentioned in policy documents as a means to address coastal and ocean issues, including those related to fisheries. Several conceptual and theoretical governance models have been developed to advance discourse. Among these is "interactive governance," an approach that focuses on understanding the characteristics of natural and social systems, governance systems, and their interactions (Chuenpagdee, 2011). In the field of structural research, Jentoft and Chuenpagdee (2015) analyze the need to adopt a governance approach that is adapted to the particularities of the system and consistent with its instrumental capacity and normative quality. They underline the importance of governance research, especially in the social and transdisciplinary sciences. On the other hand, Johnsen (2014) proposes that governability results from adapting both the governance system and the system to be governed, configured together. Thus, shifting the focus from system properties to the tools used to simplify the complexity of a system into governable objects and actions is fundamental to understanding governability. Furthermore, Jentoft et al. (2010) point out that interactive governance is a complex system of public and private actors working together to create and implement rules and institutions. They emphasize that the problems and opportunities for governance lie in the interactions, particularly between the systems being governed and the governing system.

Interactive governance theory suggests that different approaches to decision-making and its implementation are reflected in the modes of governance (Bavinck and Jentoft, 2014). This theory argues that the governability of a fishery system depends on both the governance capacity and the overall quality of the system to be governed. Factors influencing fisheries governability include the diversity, complexity, dynamics and scale of the natural and social systems being governed, as well as of the governance system (Chuenpagdee and Lorenzi, 2020). Finally, current thinking regarding good governance suggests that it is more appropriate to manage government interventions at the Large-scale Marine Ecosystem (LME) level through multilevel governance policy cycles, due to their ability to manage complexity, foster inclusive participation, and integrate policies and actions at different levels (local, regional, national, and international) (Mahon et al., 2009). This implies a structured and systematic approach that encompasses different levels of cooperation between various entities, ensuring integrated management.

The ramifications within the field of governability and governance are detailed below. **Figure 5** illustrates the citation network using the clustering algorithm to identify the subfields within this domain.

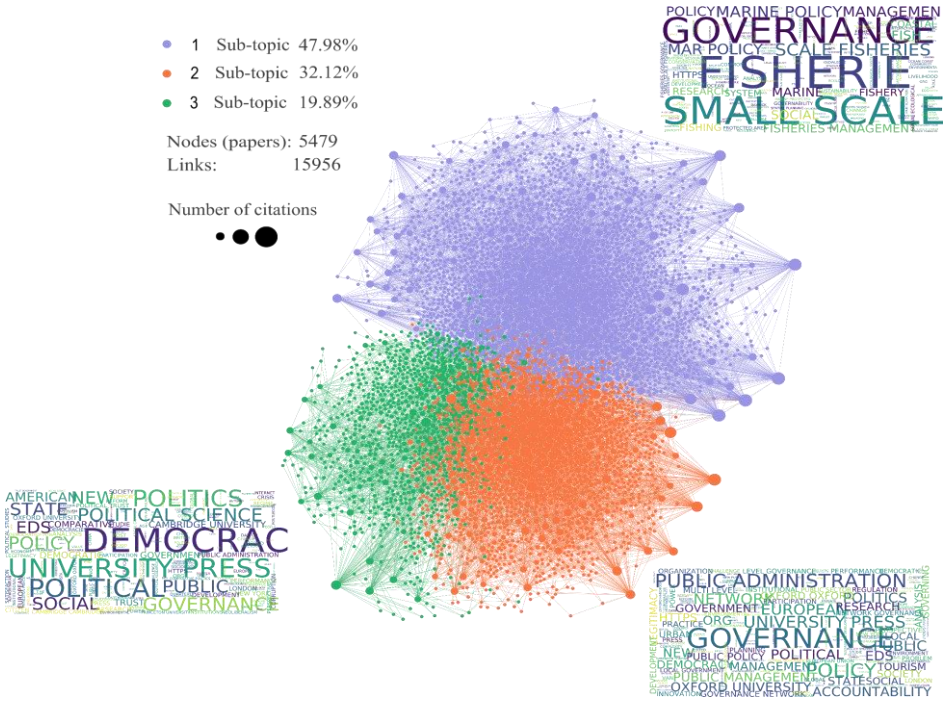

Figure 5. Academic network for governability and governance.

3.2.3. Leaves (trends)

The articles that have been classified into different shades are shown below. The methodology used allowed us to group these studies into three clusters:

Branch 1. Policy management in the governance and governability of fisheries systems

Recently, there has been a remarkable interest in both conceptual and applied research on governability and governance of natural resources, for example, in the design of fisheries systems. From this perspective, governability is defined as the capacity of a fisheries and coastal system to be effectively governed; this system is always composed of two elements: A system to be governed and a system of government. Governability is intrinsically related to the interactions between these two systems (Chuenpagdee and Jentoft, 2009). Likewise, the first system is social, composed of institutions and governance mechanisms. The second system is partially natural and social, including an ecosystem with its resources and a set of users and stakeholders that create political coalitions and institutions (Jentoft et al., 2007). Interactive governance theory postulates that the effectiveness of governance in a fishery system depends on the governance capacity and quality of the system being managed, influenced by the diversity, complexity, dynamics and scale of the natural and social systems involved, as well as the effectiveness of the governance system (Chuenpagdee and Lorenzi, 2020).

In a recent study, (Chuenpagdee and Jentoft, 2015b), apply this framework to the analysis of small-scale fisheries; recognizing the distinctive particularities of each fishery that must be considered. Small-scale fisheries in mainland Ecuador and the Galapagos Islands face various challenges, especially due to the limited management capacity of fisheries systems. The implementation of a comprehensive national policy approach to fisheries is proposed, which would promote the

sustainability of small-scale fisheries and the viability of fishing communities in both regions (Barragán-Paladines, 2019). Emphasizing the mutual interaction between the governors and the governed, as well as the joint understanding of the capacity and subject elements of government, can contribute to a more rational approach to governability. This provides a clearer and more practical view of how both governors and fishers can contribute to making fisheries governable (Song et al., 2018).

Governance and governability of the fisheries system, especially in small-scale fisheries, presents considerable challenges due to its diversity, dynamism, seasonality, and spatial and temporal characteristics at multiple scales (Shan et al., 2023). Furthermore, current and future changes in European fisheries governance indicate not only a "communicative shift", but a complete transformation in the relationships between government, science and the fishing industry. At the core of these changes are the Regional Advisory Councils (RACs) and the proposal to partially transfer the burden of proof to resource users (fishing industry). This change implies new forms of interaction between fishers' representatives, non-governmental organizations, politicians and scientists (Jentoft and Linke, 2013).

It should also be noted that each of the contributions in this branch provided support focused on governability and governance, revealing how government systems are structured in relation to various areas and sectors; focusing on the ability of systems to be effectively governed, covering the processes through which government is exercised, as well as the need to implement comprehensive policies to promote the sustainability and viability of small-scale fisheries. In this sense, the role of governability and governance in fisheries and coastal systems is a key factor in addressing the challenges and ensuring good governance.

It is not surprising that fishing systems are a matter of interest and are related to the debate on governability and governance. This is explained, given, among others, because collaborative interaction systems are a reference in the field of natural resources, public goods, and all those where the State, society, or the market generate rules of the game and institutions to preserve and conserve the resource. Common goods are, by their nature, a focus of the study of governability and governance systems.

Branch 2. Governance and governability network

Currently, the importance of the concepts of governance and governability lies in recognizing that there is no single approach that is effective for all situations. Governance encompasses a variety of decision-making processes (Fernández-Vidal and Muiño, 2014), while there is a close relationship between governability and governance, as noted by Kooiman and Bavinck 2013:10 cited in (Malinauskaite et al., 2022), any effort to improve governance inevitably entails the need to examine and evaluate governability. Similarly, the governability of social systems can only be understood in or with reference to their fundamental characteristics. In turn, governability challenges are inherently present in both the system being governed and the governing system, as well as in their mutual interactions (Chuenpagdee and Jentoft, 2013). Governability reflects the ability of a system to be governed for given goals or purposes (Dring et al., 2023).

In more detail, the mode of governance is influenced by the degree of participation of government and society, including diverse actors such as businesses, civil organizations, trade associations, academic institutions, communities, religious groups, media and currently social platforms and networks. This dynamic has given rise to a more recent form of governance known as new governance or co-governance, in response to the growing complexity of the system in today's society (Aguilar Villanueva, 2023). Citizen participation in government management has become ubiquitous in institutions and is considered integral, making it a fundamental aspect of governance (Jäntti et al., 2023). Lin et al. (2023) highlight the use of Asia as a central approach to network governance, fostering collaboration among diverse stakeholders to address challenges and achieve beneficial outcomes. They emphasize that educational governance in China has transitioned from a hierarchical, centralized model to one that integrates central direction with local diversity.

Branch 3. Governance and governability network

This branch addresses the evolution of the concept of social governance in contemporary social theory, which has transcended its traditional focus on governmental actions to include all the instruments available for directing social systems collectively. According to this perspective both the state and social actors now participate in the activity of governing, making it a collective, aggregated and integrated process (Lafferty, 2004; Di Lucia, 2013). Governability constitutes a fundamental requirement to achieve democratic governance, and in turn, various modes of democratic governance would contribute to strengthen governability (Munévar, 2010). On the other hand, if Civil Society Organizations (CSOs), in collaboration with the government and other institutions, can contribute by complementing, supplementing, or monitoring policies, institutional reforms for their inclusion in a comprehensive, collaborative governance structure generate more favorable outcomes (Lopes, 2021).

Governance refers to policy formulation and implementation without a central authority, using a non-hierarchical network-like structure that relies on negotiation and cooperation between public and private actors, both within and across policy levels. This comprehensive approach combines empirical analysis with normative evaluation of governance practices, providing a systematic framework for assessing democratic legitimacy (Bekkers et al., 2016). Much of the institutional innovation in democracy migrated to another domain: 'Governance', which focuses on the creation and management of public policy. The potential democratic aspects of governance lie in the potentially responsive links between the actions of governments and what citizens receive. However, from the point of view of democratic theory, this "governance-driven democratization" represents new territory to be explored (Warren, 2009).

Indeed, governance can no longer manifest itself as sovereign government, but must be carried out through various forms of meta-governance, regulation or self-regulation. As a result, the role played by politicians in the governance of society endangers representative democracy in its traditional form, although it does not necessarily threaten representative democracy in essence (Sørensen, 2006).

It is noted that each of the contributions in this field provided support focused on understanding how the concept of governance is integrated and functions within the broader framework of governability, directing social systems collectively. In this context, the state, civil society and local communities actively participate in decision-making processes. From this perspective, the interaction and correct implementation of these concepts positively influences the strengthening of local development and the improvement of the population's quality of life.

4. Discussion

This article takes a different approach to previous research for several reasons. First, the results of previous research on the distinction, transition, tensions, articulations, challenges, and dichotomy surrounding the concepts of governability and governance have not been congruent, robust, or unified. Second, previous research has only used qualitative or quantitative bibliometric analysis. While providing numerical or qualitative data, these approaches lack depth by focusing on only one aspect of governability or governance, without establishing a complete connection between the two concepts. As a result, this article analyzes both qualitatively and quantitatively the research on governability and governance through a scientometric bibliometric analysis to understand the current state of the literature on governability and governance. To this end, a comprehensive review of 85 articles obtained from WoS and Scopus databases was conducted using tools such as Microsoft Excel, Biblioshiny and RStudio. The three key questions posed in the introduction will be addressed in this section, which will synthesize the results.

The first research question addresses the main challenges identified when exploring the concept of governability and governance, to answer this question, Biblioshiny and Microsoft Excel were used, along with a scientometric analysis and the ToS algorithm. The results revealed a diversity of definitions around these concepts, which makes it difficult to build a solid and unified framework for their study. In addition, identifying emerging trends, evolutions, and approaches within these fields presents a challenge, given the considerable volume and transition of available literature. Integrating data from the two databases used, WoS and Scopus, is also a challenge, requiring advanced tools and methods to achieve a solid and holistic understanding of the concepts.

To answer the second question, this article analyzes each key aspect of the literature on these topics, also using Biblioshiny and Microsoft Excel to quantitatively analyze journals, countries and most influential authors in the field and comes to three conclusions. First, the results show that both the number of articles and citations within this field has increased and that the journal Marine Policy is the most prominent in terms of ranking (Q1), as it meets the highest quality standards. Secondly, in terms of publications, citations, and collaborations, the United States stands out as the most academically influential country. Finally, Jentoft Svein and Torfing Jacob are the leading authors.

The last research question addresses the main advances and contributions derived from the application of scientometric techniques to the study of governability and governance. The Science Tree methodology identified patterns,

structures, and emerging trends, as well as the behavior of scientific production. This made it possible to evaluate the quantity, quality and impact of publications and collaborate among researchers who explored these topics from different perspectives. These analyses have contributed to understanding the evolution of the field of study, facilitating the identification of the most influential and relevant publications in the field of governability and governance.

5. Conclusion

In recent years, the number of articles on governability and governance has increased rapidly, which has contributed significantly to filling a gap in scientometric bibliometric research in this field. To achieve this objective, an analysis and visualization of these articles were carried out using the Biblioshiny tool. This evidences that, during periods of transition from governability to governance, new forms of dialogue emerge in which both the state and other non-state actors play a key role in the adaptation of governmental structures, leading to a form of collaborative government and public management. The empirical approach to the concepts of governability and governance through scientometric analysis made it possible to comprehensively dimension the development of new governance.

This article presents a bibliometric review of governability and governance using two approaches. The first is associated with three main objectives: To identify the main challenges in exploring the concepts, to highlight the most prominent countries, authors and journals, and to point out the main advances and contributions that scientometric techniques have made to the study of these topics. These objectives were achieved by analyzing 1,921 records in the Scopus and WoS databases since 2000 and 2001, respectively. The results presented provide information on the evolution and application of governability and governance in collaborative government. The second employed the ToS metaphor, in which the two most well-known scientific databases, WoS and Scopus, were combined. In addition, full data visualizations and analyses were performed by extracting data from these same databases.

The ToS analysis presents three main subfields within governability and governance. It focuses primarily on the applications of governability and governance of fisheries systems and public policy management, highlighting the importance of understanding the interactions between governability and governance to achieve effective management and respond to challenges, as in the case of natural resources such as fisheries, as well as the need to implement comprehensive policies to promote the sustainability and viability of small-scale fisheries. The second subfield focuses on the governability and governance network, highlighting how the new form of governance responds to emerging governability issues. Indeed, this new governance emphasizes citizen participation as a key element in achieving good governance. The third subfield is concerned with social, democratic and collaborative governance and governance, highlighting that the joint work between government, local communities and civil society is key to improving governance and governance by strengthening representativeness and transparency in decision-making processes. This collaboration not only improves the quality of the policies

implemented, but also strengthens social cohesion and contributes to the sustainable development of the territory.

However, due to the valuable theoretical and practical contributions of this research, the evidence is more related and robust. First, it offers a comprehensive and systematic overview of the literature on governability and governance, providing researchers with crucial information on the main publications, indexed journals, authors, and leading countries on these topics. This not only accelerates progress in the field, but also provides clear guidance for identifying approaches for future research, thus contributing to a deep and comprehensive conceptual understanding in the field of governability, governance, their interactions and complementarities. Nevertheless, it is crucial to recognize the limitations of this article, given that it is based on the review and analysis of previously published scientific articles, which conditions the conclusions to the accessibility and quality of the data available in the literature. However, this research manages to provide an updated approach to the patterns, structures, trends, evolutions, behaviors and challenges in this field. These data are fundamental for decision-makers, researchers and academics, as they serve as a basis for future debates and discussions on how to implement the concepts at the practical level of action, management and operation of governmental structures.

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