

Innovation at the Board Level: Bibliometric Analysis over Three Decades

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Abstract. *This study aims to investigate the evolutionary path of the relationship between innovation and board research knowledge over the past thirty years. Its objective is to understand the scientific activity and influence of current research in this field. Furthermore, it aims to outline current theme trends and provide suggestions for future study in this field. This research is a quantitative exploration that involves analyzing an intellectual framework within the field. Using a bibliometric methodology, we carefully chose 184 papers from the Scopus database that are specifically focused on innovation at the board level. These studies were then subjected to thorough examination. The utilization of VOSviewer software enabled the clear and concise representation of the outcomes. The bibliometric study involved identifying research themes, current and future directions, co-occurrences, co-citations, impact, and collaboration tendencies. The methodological framework has four consecutive stages: data acquisition, data examination, data representation, and data interpretation. The data demonstrate a noticeable increase in scholarly interest, especially in the past three years, suggesting a growing field of study. Four main areas of research were identified: the relationship between board diversity and its effect on the innovation process; the interaction between board culture and the effectiveness of innovation; the impact of board structure on innovation; and the growing emphasis on green innovation influenced by boards of directors. The methodology of this study recognizes the complex relationships between innovation and the overall setting of the board of directors, providing useful insights for both academic research and practical decision-making in the field of company performance.*

Keywords: innovation, board of directors, business performance, bibliometric analysis, VOSviewer.

Introduction

In the contemporary dynamic and competitive business environment, innovation has emerged as a pivotal factor for organizations, both in the private and public sectors. Historically, companies that have successfully innovated have reaped benefits in terms of success, revenue, and enhanced marketing capabilities (Maier et al., 2020). Recent years have underscored the strategic advantage that innovation provides, enabling organizations to outperform competitors and maintain agility in the face of challenges such as COVID-19, supply shortages, cyber breaches, geopolitical instability, and the transformative impact of new technologies.

Amidst challenges, growth opportunities are discernible. Generative AI, as a transformative technological advancement, holds the potential to elevate productivity and reshape work dynamics, business models, and societal frameworks. Simultaneously, the ongoing energy transition necessitates a reframing of business strategy to navigate risks and thrive in a low-carbon economic future. In this dynamic context of crisis and opportunity, directors are playing a crucial role in

resource allocation for innovation and establishing performance indicators to safeguard investor interests and achieve desired outcomes.

Given the growing importance of innovation across sectors, there exists a research gap in comprehensively understanding the evolution of the innovation discourse at the board level. The goal of this study is to fill in that gap by using the online database Scopus and the keywords "innovation" and "board" to search for studies on innovation in company boards over the last 30 years.

The study will also use bibliometric analysis through VOSviewer (Waltman et al., 2010) to give a full picture of the research landscape, find gaps, spot trends, and suggest future directions in the field of service innovation. Additionally, it delves into detailed analyses related to key authors, institutions, journals, publications, and citation and co-citation patterns. The outcomes of this bibliometric analysis not only contribute to academic knowledge but also offer valuable insights for policymakers and practitioners, aiding informed decision-making regarding resource allocation and value creation.

The organization of this paper follows three sections: the first elucidates the study's methodology, encompassing data collection and sampling; the second section presents the study's bibliometric maps and analyses; and the final section engages in a discussion of the results and their implications. Cluster analysis, a structural trend identification method, was employed to discern patterns in the literature on innovation at the board level across various disciplines.

This method facilitated the recognition of repetitive patterns and guided the development of important research inquiries. In light of this context, the current study aims to investigate the following research inquiries:

RQ1: Which journals address innovation within the realm of board-level discussions and how have they evolved over time?

RQ2: Who are the principal contributors in terms of articles, sources, and authors, shaping the innovation topics within the board-level considerations?

RQ3: What are the predominant subjects of inquiry concerning innovation at the board level, and how have these thematic emphases evolved over time?

Theoretical background

The board's supervision and encouragement of innovation has consistently been crucial to the company's expansion. The presence of COVID-19, scarcity of supplies, cybercrime, geopolitical uncertainty, and emergence of new technology have collectively generated an ambiguous atmosphere, necessitating businesses to promptly adjust and react. Hence, innovation continues to be a crucial focus for enhancing company competitiveness. A report conducted in 2024 by EY highlights that innovation continues to be a significant area of attention for boards, ranking among the top five issues to be addressed in 2024.

Furthermore, McKinsey & Company discovered that in times of uncertainty, adhering to established norms and making little adjustments carries a higher level of risk compared to embracing innovative risks and fostering creativity (McKinsey, 2023). While innovation may seem less risky, it nonetheless faces challenges.

The rapid growth of generative AI technology poses several concerns. Leaders engage in boardroom discussions to deliberate on the potential of generative AI and strategize on how to effectively use its capabilities for their enterprises (Nuveen, 2023). Research from KPMG shows that global CEOs put generative AI investments at the top of their list. According to a survey conducted by KPMG in 2023, 70% of the participants are making significant investments in

generative AI to gain a competitive advantage. The challenge comes with both the meticulous allocation of financial resources and possessing the expertise to optimize their advantages. Moreover, organizations should prioritize the examination of how their product and service innovations might bring advantages to stakeholders or mitigate risks.

However, innovation and technology play a crucial role in helping carbon-intensive industries, such as industrials, tackle climate-related challenges (Valero-Gil et al., 2023). These strategies implement alternative procedures to minimize the consumption of natural resources and preserve biodiversity by employing sustainable management or treatment, hence ensuring the long-term viability of local natural resources.

Given the multitude of difficulties, it is imperative for leaders to effectively handle the impacts of innovation. Hence, the field of management research has prioritized the study of innovative ambidexterity because of its ability to enhance adaptation and flexibility, both of which are crucial for maintaining competitiveness (Saleh et al., 2023). The executives who possess ambidexterity employ defensive measures such as cash preservation, as well as offensive tactics, to protect their companies. Even during periods of instability, they generate value by strategically positioning their companies to flourish in a potentially transformed environment. Robertson et al. (2023) assert that the primary factors influencing innovation performance are knowledge creation and knowledge absorption.

Therefore, boards of directors have a crucial role in promoting resilience by considering several alternative scenarios and finding a middle ground between discipline and reform (Singh et al., 2023). Păunescu and Argatu (2020) argue that achieving organizational resilience and optimal business continuity efficiency necessitates equal focus on internal factors such as individuals, resources, procedures, and organizational culture, as well as external factors that comprise possible risks and threats.

This requires a harmonious approach to managing a company, which allows for adaptability in decision-making to support the implementation of strategies and encourage innovation (Rebeiz, 2018). For innovation to be effective at the board level, it is essential to know who is in the boardroom to discuss innovation. Literature increasingly underscores the necessity of knowledge sharing and application (Kaur, 2019) by integrating external knowledge to yield higher levels of novelty and improved returns on research and development investments (Parrilli and Radicic, 2020).

The imperative of incorporating a diverse array of backgrounds, experiences, and perspectives onto corporate boards has become a pivotal consideration. As articulated by Griffin (Griffin et al., 2021), organizations characterized by gender-diverse boards exhibit a greater propensity for generating patents, particularly those of a novel nature, thereby indicating heightened levels of innovative efficiency, impacting also the environmental performance (Orazalin & Mahmood, 2021).

In today's commercial environment, simply having individuals with various experience, cultural affinities, educational backgrounds, and other characteristics in boardrooms is no longer considered enough. In recent years, scholars have emphasized the necessity of creating innovation ecosystems (Bacon et al., 2020) to successfully tackle the various possibilities and problems involved in promoting innovation.

Methodology

We employ bibliometric analysis to comprehend the trend, pattern, and paradigm-shifting findings in the area of innovation from the board perspective. In general, as argued by Donthu et al. (2021a)

and Romanelli et al. (2021), bibliometric analysis is a recognized scientific method for examining a literature corpus in which statistical approaches are used to examine scholarly data (such as publication and citation statistics). The method is a well-known technique for doing scientific research with applicability in many fields.

The current study specifically follows the Donthu et al. (2021a) four-step bibliometric analysis process, which entails establishing the goals and scope of the study, selecting the techniques for analysis, gathering the data for analysis, conducting the analysis, and summarizing the results as depicted in Fig. 1.

A search was performed in the Scopus database for the supplied keywords in titles and abstracts (see the "Selection of database" section for further information), generating 1244 papers published from 1993 to 2024.

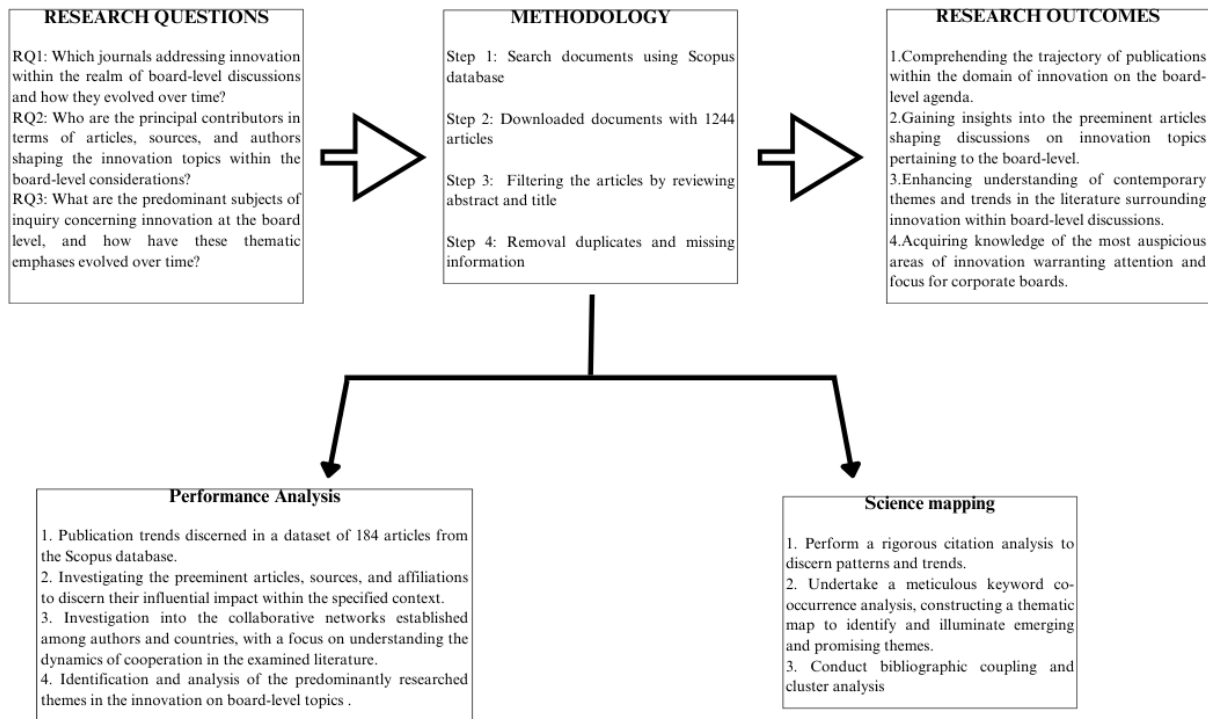


Figure 1. Overview of methodology

Source: Authors' own research.

Selection of database

The document selection process for this study involved a series of methodical steps, as illustrated in Figure 2. The entirety of the document search and selection procedures transpired in January 2024. A bibliometric analysis was executed on the Scopus database, focusing on two overarching concepts: innovation and board, with key terms such as "corporate governance" and "strategic leadership" also taken into consideration. Scopus was chosen for this bibliometric analysis due to its extensive coverage of journals, surpassing other scientific databases like WoS.

The search parameters were not confined to specific dates, neither at the commencement nor the conclusion. Given the broad nature of the selected keywords, a comprehensive pool of articles totaling 1244 results was initially identified. The subsequent step involved refining the outcomes to exclude documents not relevant to the study's focus. Documents falling under the

Scopus categories of "Business, Management, and Accounting," "Economics, Econometrics, and Finance," and "Social Sciences" were retained. Further refinement involved filtering by document type, retaining only articles and conference papers. Post-refinement, the resulting dataset comprised 569 documents.

The final step entailed a meticulous selection process, wherein articles most pertinent to the study were systematically chosen, eliminating documents with titles and abstracts unrelated to the subject. The ultimate sample comprised 184 articles, with the earliest publication dating back to 1993 and the most recent publications emerging in 2024.

Subsequently, bibliometric metadata was extracted from each selected document to facilitate the ongoing investigation. This specific dataset encompassed the frequency of citations for each article, author details, source information, country of origin, and references. Additionally, the title, abstract, and keywords of all articles within the final sample were extracted. These extracted details constitute a valuable resource for constructing and analyzing diverse bibliometric maps, thereby enabling a more comprehensive and in-depth exploration of the subject matter. For a better explanation of the research results the author may use graphical illustrations or tables.

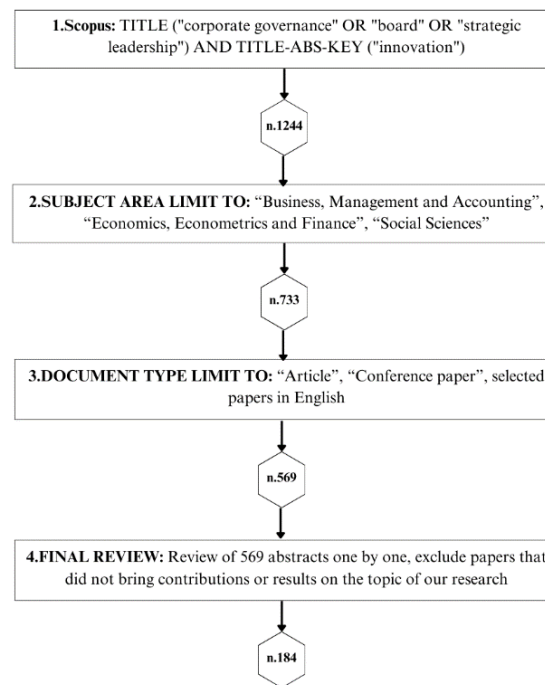


Figure 2. Literature search process (January 2024)

Source: Authors' own research.

Utilizing version 1.6.20 of the VOSviewer software, a bibliometric network analysis was conducted for this study, as outlined by Van Eck and Waltman (2017). This tool was employed to conduct a detailed examination of the final sample, comprising 185 selected articles, facilitating the exploration of relationships between authors and key terms.

The analytical framework employed in this study, utilizing VOSviewer, performs two types of analyses: co-occurrence analysis and co-citation analysis. Co-occurrence analysis elucidates the associations among the most frequently employed keywords within specific domains (Fauzi, 2022). On the other hand, co-citation analysis aims to discern the influence of scholarly papers, journals, and authors within distinct scientific disciplines. Examining the connections between pairs of

papers frequently cited together in other scholarly works – visually represented on a map – helps achieve this (Aghimien et al., 2022).

Results and discussions

This section presents the outcomes pertaining to the research question delineated in the introductory section. The descriptive analysis, as depicted in Table 1, provides insights into the total number of articles deemed pertinent to the study. The table indicates that a corpus of 184 articles was generated, authored by 529 individuals, and published in the English language between 1993 and the first days of 2024. The keyword refers to the terms that are most commonly used in the research that are part of the final sample. The analysis was performed by examining the co-occurrence of all keywords provided in the abstract part of each manuscript. In order to ensure the research's representativeness, a minimum threshold of five occurrences of a keyword was established for its inclusion in the analyze. Hence, 27 out of the total 928 keywords satisfy this criterion. The conditions specified were employed in order to generate the map depicted in Figure 7.

Table 1. Main information about data

Main information about data	
Time horizon	1993,2024(Jan)
Total documents	184
Keywords (one co-occurrence)	928
Keywords (five co-occurrence)	27
Authors	529

Source: Authors' own research.

Figure 3 illustrates the publication trend over the years, revealing an escalating trajectory in research on the topic of innovation within the realms of board and corporate governance. Notably, over the course of three decades, there has been a discernible upward trend. Furthermore, a noteworthy evolution has been observed in the last four years, accounting for 57% of the analyzed database. This surge can be attributed to the escalating global significance of the innovation discourse, exacerbated by the COVID-19 pandemic, compelling boards of directors to actively engage in and expedite innovation processes within companies, address social and environmental challenges (Scherer & Voegtlin, 2020), or help small and medium companies continue their activity (Paunescu & Matyus, 2020).

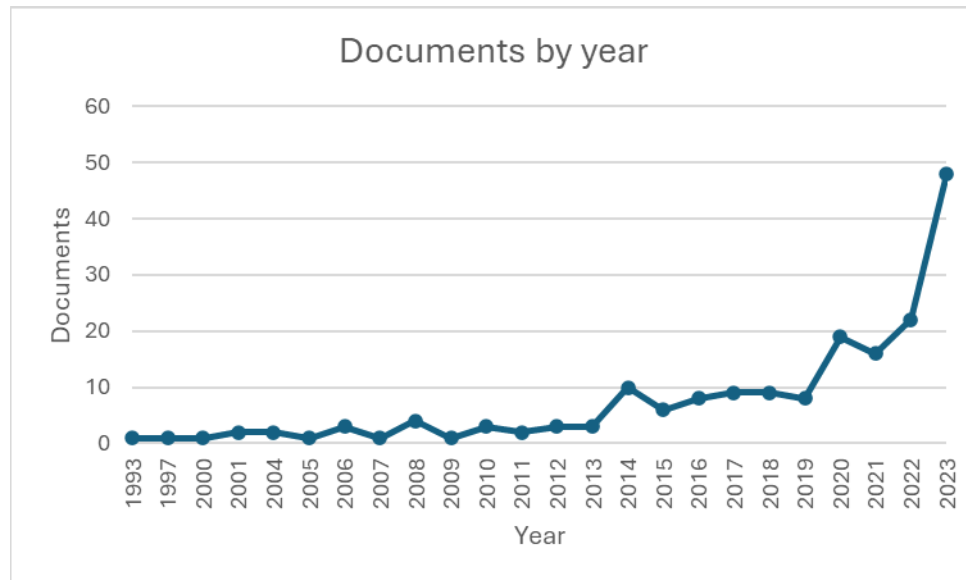


Figure 3. Documents evolution by year

Source: Authors' own research.

Table 2 provides information about the top journals publishing articles on innovation related to board level. It is evident from the figure that Sustainability (Switzerland), Corporate Governance (Bingley), Cogent Business and Management, Corporate Ownership and Control, Journal of Business Research, and European Journal of Innovation Management are among the top six journals that have published on the topic in the last two decades, accounting for around 16% of the analyzed papers.

Table 2. Ranking of the top Journals

Source title	Number of documents
Sustainability (Switzerland)	6
Corporate Governance (Bingley)	6
Cogent Business and Management	5
Corporate Ownership and Control	5
Journal of Business Research	4
European Journal of Innovation Management	4
Business Strategy and the Environment	3
Journal of Management and Governance	3
Management Decision	3
Corporate Governance: An International Review	3
Proceedings of the 27th International Business Information Management Association Conference	3
Indian Journal of Corporate Governance	3
Corporate Social Responsibility and Environmental Management	3
International Journal of Financial Studies	3

Source: Authors' own research.

In addition to the information provided in Table 2, Figure 4 provides the details of the most important thirty cited journals. Strategic Management Journal, Journal of Financial Economics, Academy of Management Journal, Journal of Business Ethics, and Academy of Management Review are the top five journals cited most in innovation on board-level scholarship.

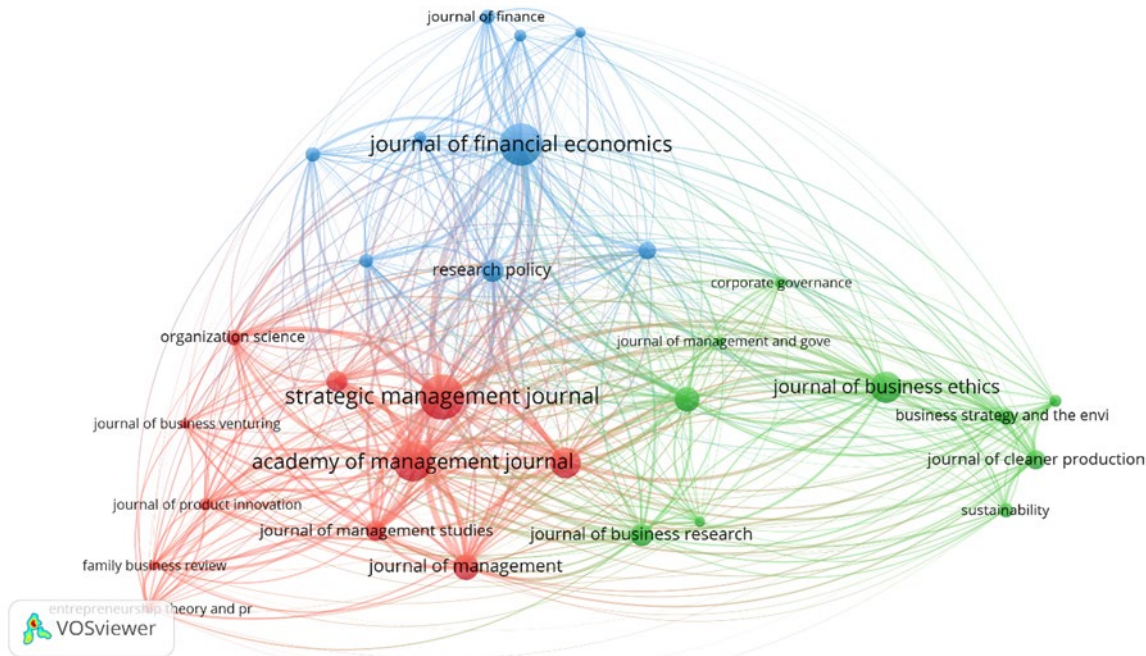


Figure 4: VOSviewer network visualization of the co-citation map, unit of analysis: cited source

Source: Authors' own research results using VOSviewer

The purpose of a citation analysis is to identify the documents that are considered to be the most important within a particular area of research. This is accomplished by identifying the publications that have a more significant impact in comparison to their counterparts that are mentioned less frequently. The ten articles that have received the most citations in absolute terms are outlined in Table 3. This table not only provides the total number of citations, but it also provides the average number of citations that have been received annually over the period of time beginning with the year of publication and ending in January 2024.

Table 3. The 10th most cited articles

Authors	Title	Journal	Year of publication	Citations	Average per Year
Griffin D.; Li K.; Xu T.	Board gender diversity and corporate innovation: International evidence	Journal of Financial and Quantitative Analysis	2021	115	38.33
Scherer A.G.; Voegtlin C.	Corporate governance for responsible innovation: Approaches to corporate governance and their implications for sustainable development	Academy of Management Perspectives	2020	149	37.25

Authors	Title	Journal	Year of publication	Citations	Average per Year
Xue Y.; Jiang C.; Guo Y.; Liu J.; Wu H.; Hao Y.	Corporate Social Responsibility and High-quality Development: Do Green Innovation, Environmental Investment and Corporate Governance Matter?	Emerging Markets Finance and Trade	2022	74	37.00
Arzubiaga U.; Kotlar J.; De Massis A.; Maseda A.; Iturralde T.	Entrepreneurial orientation and innovation in family SMEs: Unveiling the (actual) impact of the Board of Directors	International Journal of Business Governance and Ethics	2018	172	28.67
Singh A.; Lim W.M.; Jha S.; Kumar S.; Ciasullo M.V.	The state of the art of strategic leadership	Journal of Business Research	2023	21	21.00
Orazalin N.; Mahmood M.	Toward sustainable development: Board characteristics, country governance quality, and environmental performance	Business Strategy and the Environment	2021	60	20.00
Qiu L.; Yu R.; Hu F.; Zhou H.; Hu H.	How can China's medical manufacturing listed firms improve their technological innovation efficiency? An analysis based on a three-stage DEA model and corporate governance configurations	Technological Forecasting and Social Change	2023	18	18.00
Shafeeq Nimr Al-Maliki H.; Salehi M.; Kardan B.	The relationship between board characteristics and social responsibility with firm innovation	European Journal of Management and Business Economics	2023	18	18.00
Kuzey C.; Fritz M.M.C.; Uyar A.; Karaman A.S.	Board gender diversity, CSR strategy, and eco-friendly initiatives in the transportation and logistics sector	International Journal of Production Economics	2022	29	14.50
Belloc F.	Corporate governance and innovation: A survey	Journal of Economic Surveys	2012	159	13.25

Source: Authors' own research.

The extensively cited paper by Griffin et al. (2021) undertakes an analysis of cross-country determinants influencing board gender diversity, establishing its correlation with corporate innovation. The study concludes that entities boasting gender-diverse boards exhibit a higher number of patents, particularly novel ones, and greater innovative efficiency. Six of the most-cited papers make the case for a link between board-level innovation and social responsibility or social innovation in different ways. These include responsible innovation (Scherer, 2020), corporate social responsibility (Xue et al., 2022; Shafeeq Nimr al-Maliki, 2023), environmental aspects of innovation (Orazalin & Mahmood, 2021; Qiu et al., 2023), and eco-friendly practices (Kuzey et al., 2022).

Conversely, the remaining four papers delve into the examination of the impact of innovation at the board level emanating from board structure and diversity, thereby fostering innovation. Within this selection of top papers, only two studies (Belloc, 2012; Qiu, 2023) explore

the influence of the board of directors on technical innovation, while one paper investigates a bibliometric-temporal analysis of strategic leadership.

A bibliometric citation map was generated to visually analyze the interconnections among the ten most cited articles, as depicted in Figure 5. The findings indicate that a mere two papers, namely Belloc (2012) and Qiu (2023), are linked to each other, addressing similar themes, albeit within distinct research temporalities.

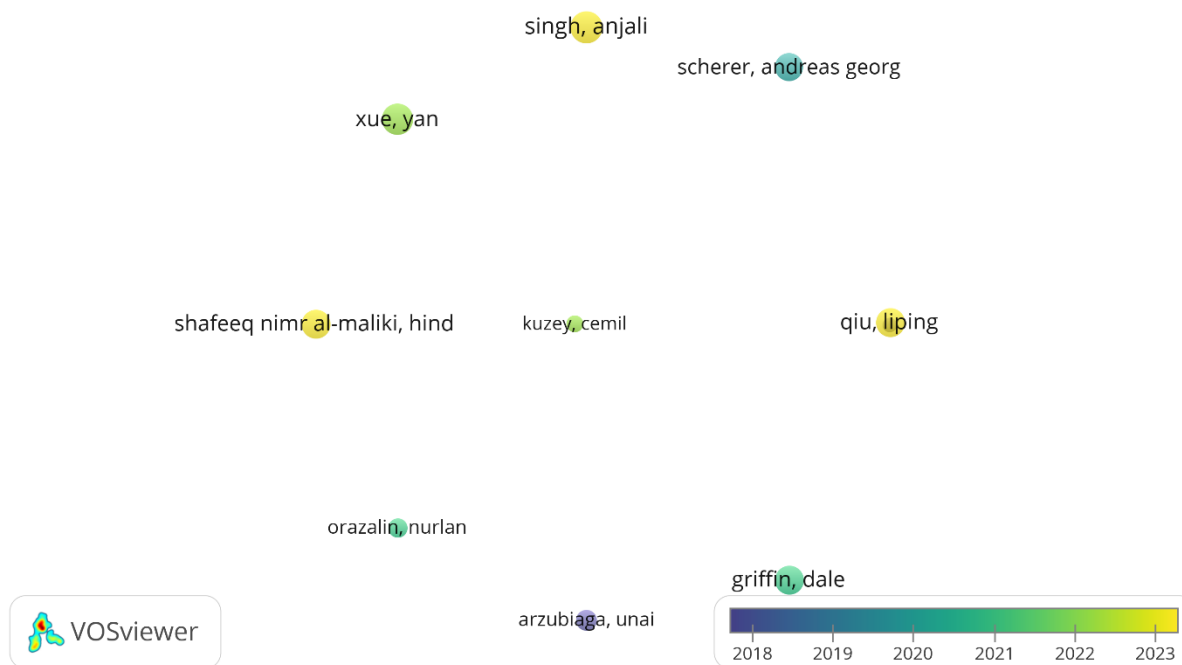


Figure 5: VOSviewer overlay visualization of the citation map, most cited ten authors

Source: Authors' own research results using VOSviewer.

Subsequently, an additional bibliometric citation map was constructed to scrutinize the relationships encompassing all of the most cited papers, as illustrated in Figure 6. This analysis revealed that 53 papers exhibited interconnections, leading to the identification of 13 clusters and 64 links between papers. Notably, four of these clusters demonstrated substantive interlinkages, involving more than four papers, as detailed in Table 4.

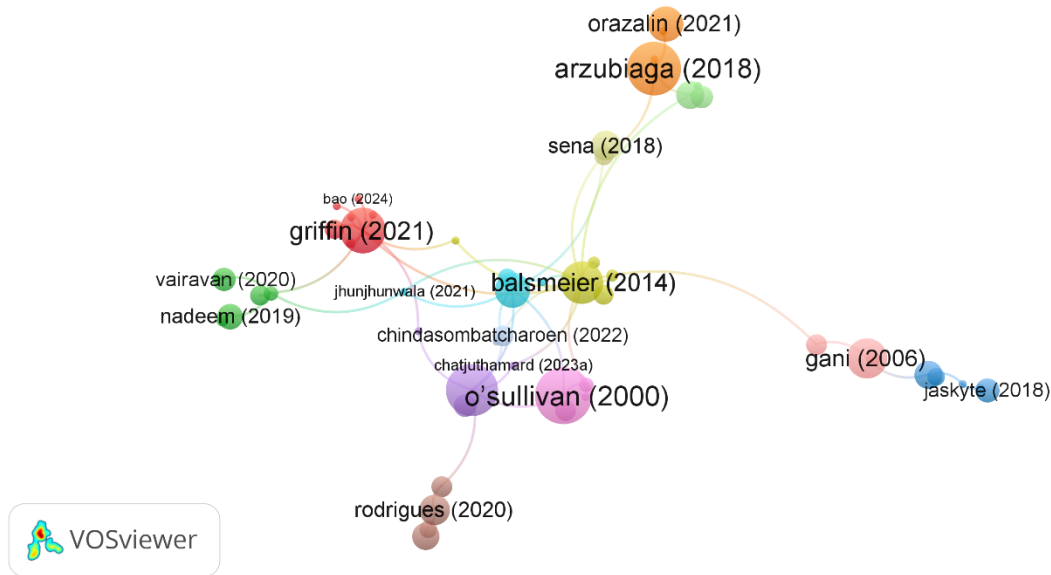


Figure 6: VOSviewer network visualization of the citation map, most cited documents

Source: Authors' own research results using VOSviewer.

Table 4: Top clusters for the most cited documents

Cluster	Documents	Focus
Cluster 1 (red color)	Adams (2023), Bao (2024), Genin (2023), Griffin (2021), Hernandez-Lara (2021), Lee (2023), Zhu (2023)	Board gender diversity impacting the corporate innovation
Cluster 2 (green color)	Chatjuthamard (2023b), Makkonen (2018), Makkonen (2022), Nadeem (2019), Principe (2023), Vairavan (2020)	Board diversity (structure, gender, etc.) impacting firm innovation and performance
Cluster 3 (blue color)	Ben Rejeb (2020), Chouaibi (2010), Jaskyte (2018), Escandon-Barbosa (2023), Pi (2023)	Board culture and effectiveness in corporate innovation
Cluster 4 (yellow green color)	Abebe (2018), Bai (2023), Balsmeier (2014), Sarto (2022), Wu (2022b)	Board structure and innovation input

Source: Authors' own research result based on VOSviewer clustering.

In the present investigation, a co-occurrence analysis was employed to cluster keywords utilizing the VOSviewer software application. From the pool of 27 keywords with a minimum frequency of five occurrences, a refined selection of 20 principal keywords was identified after excluding those deemed irrelevant to the research objectives, such as "China," "panel data," "engineering," "commerce," "human capital," "education," and "information management." As delineated in Table 5 and Figure 7, the pivotal nodes, excluding the predetermined search terms ("corporate governance," "innovation," "board of directors"), encompassed keywords such as "sustainable development," "board composition," "board gender diversity," and "corporate social responsibility." These emerged as the most recurrent keywords, with frequencies of 21, 20, 18, and 18 occurrences, respectively.

Table 5. Clusters of the main keywords of five co-occurrence

Cluster	Keyword	OC	TLS
Cluster 1 (red color)	board of directors	28	40
	ceo	5	8
	corporate governance	78	104
	ownership	5	6
	strategic leadership	8	6
Cluster 2 (green color)	board gender diversity	11	18
	corporate social responsibility	7	18
	financial performance	5	12
	green innovation	8	15
	sustainability	6	15
Cluster 3 (blue color)	board composition	10	20
	board diversity	6	4
	board independence	6	10
	performance	6	12
Cluster 4 (yellow green color)	corporate strategy	6	13
	innovation	54	89
	patents and inventions	5	10
	research and development	6	9
Cluster 5 (purple color)	industrial management	6	14
	sustainable development	10	21

Note: *OC – Occurrence, TLS – total line strength

Source: Authors' own research result based on VOSviewer clustering.

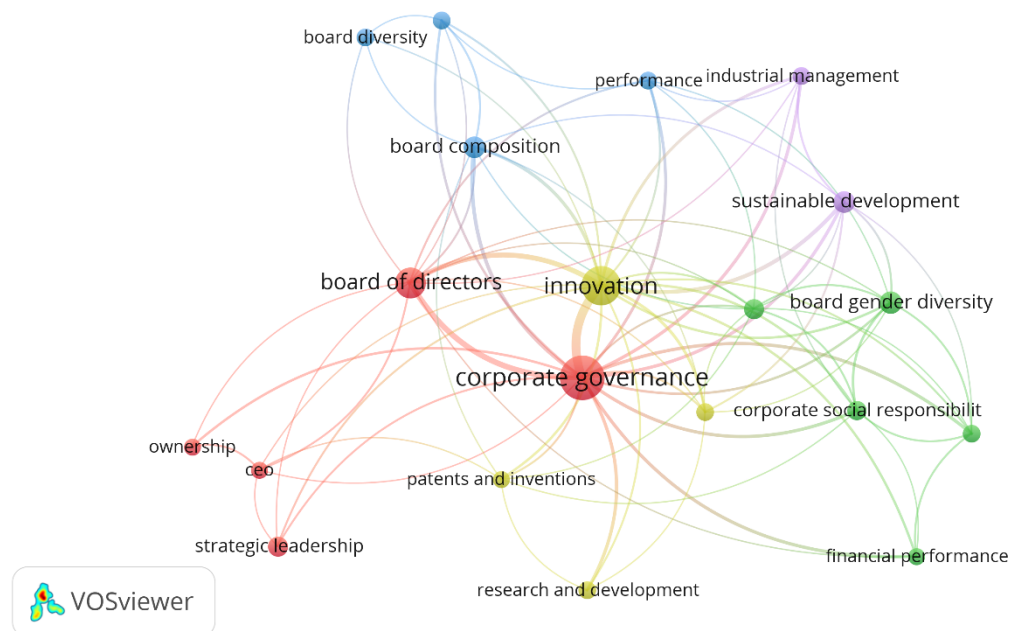


Figure 7: VOSviewer network visualization of the co-occurrence of keywords

Source: Authors' own research results using VOSviewer.

The temporal distribution of each cluster is illustrated in Figure 8, offering useful insights into the progression of each research stream across time. Figure 8 illustrates that the research conducted between 2017 and 2018 focused mostly on the fundamental features of how the board

of directors' responsibilities impact innovation. The focal points during this period were board independence, corporate strategy, sustainable development, and industrial management, which are together indicated in purple on the map. The presence of green shading on the map signifies a change in study focus from 2018 to 2019, with a shift towards investigating the composition and variety of boards of directors. These investigations over the past three years have gradually integrated the sustainability approach, combining corporate social responsibility with strategic leadership and ownership. The drivers are clearly distinguishable in a vibrant shade of green on the overlay visualization. In the recent period after 2022, there has been increased focus on green innovation and corporate gender diversity, which shows a changing emphasis in the area.

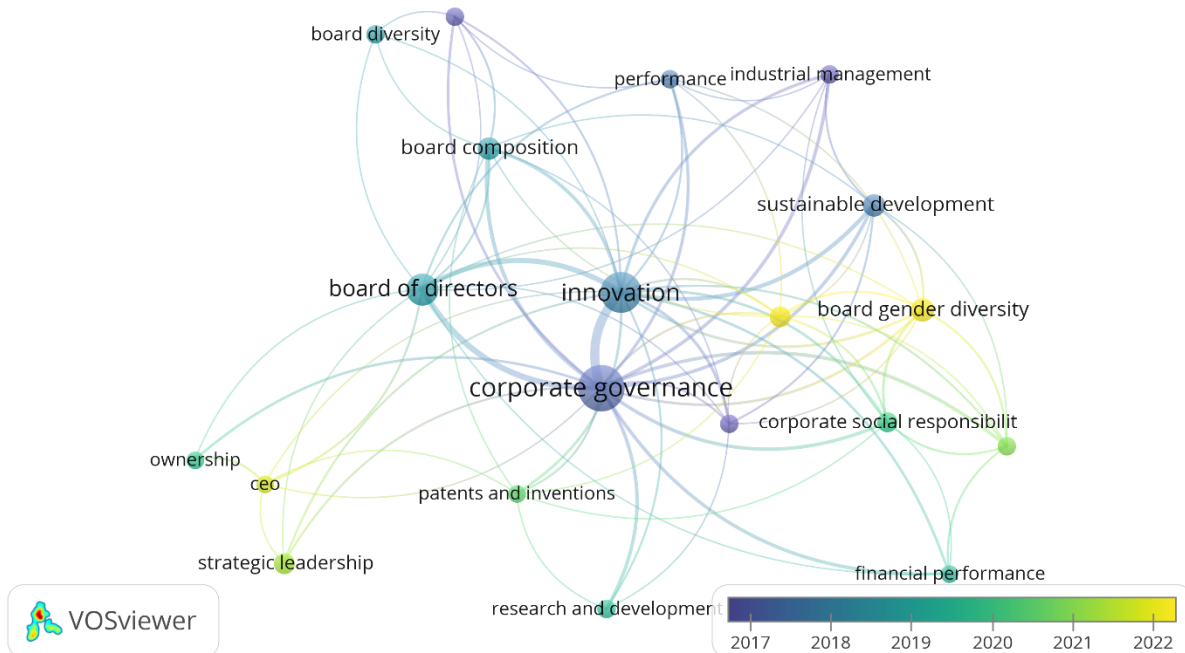


Figure 8: VOSviewer layover visualisation of the co-occurrence of keywords

Source: Authors' own research results using VOSviewer.

Conclusion

The comparison between the overlay map depicted in Figure 8 and the findings of the Total Link Strength (TLS) presented in Table 5 highlights the identification of multiple innovative issues discussed at the board level. This indicates potential areas of interest for further research. Recent studies have shown that sectors like "green innovation" and "board gender diversity" have a relatively low TLS. This remark indicates that the specified theme areas have not been thoroughly studied in the larger context of research on corporate governance and innovation on a significant level.

According to this research, it is clear that the highlighted target areas have not been thoroughly investigated in prior studies that concentrated on corporate governance and innovation at a broader level. The scholarly study, as indicated in Table 5, centers on examining the correlation between innovation and the board via the lens of corporate governance (taking into account factors such as board composition, inclusivity, and autonomy).

However, there is a notable deficiency in the existing body of research that fails to consider the factors that impact the decision-making process of the board when it comes to innovation

strategy. Cluster 2, as indicated in Table 5, exhibits a significant relationship between the variables "board gender diversity," "corporate social responsibility," "green innovation," "sustainability," and "financial performance." Griffin's (2021) influential study, extensively referenced in this research, emphasizes the impact of gender diversity on cultivating inventive corporate cultures, hence enhancing innovative performance. Given the increasing emphasis on incorporating social responsibility into discussions, it is evident that the existing scholarship lacks adequate examination of the relationship between board gender diversity and social responsibility, specifically in the context of green innovation.

Regarding innovation, does the board function as a facilitator or an obstacle? The method by which it decides its group affiliation is unclear. Hence, it is imperative to concentrate academic study on these particular domains, particularly social innovation, which has been inadequately addressed in the existing scholarly work. Further investigation is required to explore the correlation between social innovation and the level of environmental consciousness among boards. The primary emphasis should be placed on comprehending the ways in which these interactions contribute to the proactive engagement of strategic leadership in evaluating environmental performance.

While the investigation's findings offer useful insights, it is essential to acknowledge and address certain limitations. A significant constraint of this study is its exclusive reliance on the Scopus database for document collection and analysis. The inclusion of additional databases could have enhanced the study by adding a broader array of articles and subjects, so expanding the possibilities for interpreting the results. Consequently, the ability to utilize and comprehend the data is rather restricted. Subsequent investigations should prioritize the examination of incorporating novel research avenues revealed in this study, while also analyzing the changing trends of innovation in high-level corporate administration.

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References

- Aghimien, D., Aigbavboa, C., Oke, A., Thwala, W. & Moripe, P. (2022). Digitalization of construction organisations – a case for digital partnering. *International Journal of Construction Management*, 22(10), 1950-1959.
- Bacon, E., Williams, M.D., Davies, G., (2020). Coopetition in innovation ecosystems: A comparative analysis of knowledge transfer configurations. *Journal of Business Research*, 115, 307-316.
- Banholzer, M., Birshan, M., Doherty, R., and LaBerge, L. (2023). McKinsey Innovation: Your solution for weathering uncertainty. *McKinsey*. <https://www.mckinsey.com/capabilities/strategy-and-corporate-finance/our-insights/innovation-your-solution-for-weathering-uncertainty>
- Belloc, F. (2012). Corporate governance and innovation: A survey. *Journal of Economic Surveys*, 26(5), 835-864.

- Donthu, N., Kumar, S., Mukherjee, D., Pandey, N., Lim, W.M. (2021a). How to conduct a bibliometric analysis: an overview and guidelines. *Journal of Business Research*, 133, 285-296.
- EY. (2024). Americas board priorities 2024, https://www.ey.com/en_us/board-matters/americas-board-priorities-2024
- Fauzi, M.A. (2022). Knowledge hiding behavior in higher education institutions: a scientometric analysis and systematic literature review approach. *Journal of Knowledge Management*, January.
- Griffin, D., Li, K., Xu, T. (2021). Board gender diversity and corporate innovation: International evidence. *Journal of Financial and Quantitative Analysis*, 56 (1), 123-154.
- Kaur, V. (2019). Knowledge-based dynamic capabilities: The road ahead in gaining organisational competitiveness. *Springer International Publishing*.
- KPMG. (2023). CEO Outlook. <https://kpmg.com/xx/en/home/insights/2023/09/kpmg-global-ceo-outlook-survey.html#disruptivetechnology>
- Kuzey, C., Fritz, M.M.C., Uyar, A., Karaman, A.S. (2022). Board gender diversity, CSR strategy, and eco-friendly initiatives in the transportation and logistics sector. *International Journal of Production Economics*, 247.
- Maier, D., Maier, A., Aşchilean, I., Anastasiu, L., Gavriş, O. (2020). The Relationship between Innovation and Sustainability: A Bibliometric Review of the Literature. *Sustainability*, 12(10):4083.
- Nuveen. (2023). Aligning advocacy with actions Annual Stewardship Report 2022–2023. <https://documents.nuveen.com/Documents/Nuveen/Viewer.aspx?uniqueid=3b093405-a8b6-40fc-b6e5-07aa4a41a427>
- Orazalin, N., Mahmood, M. (2021). Toward sustainable development: Board characteristics, country governance quality, and environmental performance. *Business Strategy and the Environment*, 30 (8), 3569-3588.
- Parrilli, M.D., Radicic, D. (2020). STI and DUI innovation modes in micro-, small-, medium- and large-sized firms: distinctive patterns across Europe and the U.S.. *European Planning Studies*, 29 (2), 346-368.
- Păunescu, C., Argatu, R. (2020). Critical functions in ensuring effective business continuity management. Evidence from Romanian companies. *Journal of Business Economics and Management*, 21(2), 497-520.
- Păunescu, C., Matyus, E. (2020). Resilience measures to dealing with the COVID-19 pandemic. Evidence from Romanian micro and small enterprises. *Management & Marketing. Challenges for the Knowledge Society*, 15, 439-457.
- Qiu, L., Yu, R., Hu, F., Zhou, H., Hu, H. (2023). How can China's medical manufacturing listed firms improve their technological innovation efficiency? An analysis based on a three-stage DEA model and corporate governance configurations. *Technological Forecasting and Social Change*, 194.
- Rebeiz, K.S., (2018). Relationship between boardroom independence and corporate performance: Reflections and perspectives. *European Management Journal*, 36 (1), 83-90.
- Robertson, J., Caruana, A., Ferreira, C. (2023). Innovation performance: The effect of knowledge-based dynamic capabilities in cross-country innovation ecosystems, *International Business Review*, 32(2), 101866.

- Romanelli, P., Gonçalves, M.C.P., de Abreu Pestana, L.F. et al. (2021). Four challenges when conducting bibliometric reviews and how to deal with them. *Environ Sci Pollut Res*, 28, 60448–60458.
- Saleh, R.H., Durugbo, C.M. & Almahamid, S.M. (2023). What makes innovation ambidexterity manageable: a systematic review, multi-level model and future challenges. *Review of Managerial Science*, 17, 3013–3056
- Scherer, A.G., Voegtlin, C. (2020). Corporate governance for responsible innovation: Approaches to corporate governance and their implications for sustainable development. *Academy of Management Perspectives*, 34 (2), 182-208.
- Shafeeq Nimr Al-Maliki, H., Salehi, M., Kardan, B. (2023). The relationship between board characteristics and social responsibility with firm innovation. *European Journal of Management and Business Economics*, 32(1), 113-129.
- Singh, A., Lim, W.M., Jha, S., Kumar, S., Ciasullo, M.V. (2023). The state of the art of strategic leadership, *Journal of Business Research*, 158 (C).
- Valero-Gil, J., Surroca, J. A., Tribo, J. A., Gutierrez, L., Montiel, I., (2023). Innovation vs. standardization: The conjoint effects of eco-innovation and environmental management systems on environmental performance. *Research Policy*, 52(4), 104737.
- Van Eck, N.J. and Waltman, L. (2017). Citation-based clustering of publications using CitNetExplorer and VOSviewer. *Scientometrics*, 111 (2), 1053-1070.
- Waltman, L., Van Eck, N.J, Noyons, E.C.M. (2010). A unified approach to mapping and clustering of bibliometric networks. *Journal of Informetrics*, 4 (4), 629–635.
- Xue, Y., Jiang, C., Guo, Y., Liu, J., Wu H., Hao Y. (2022). Corporate Social Responsibility and High-quality Development: Do Green Innovation, Environmental Investment and Corporate Governance Matter?. *Emerging Markets Finance and Trade*, 58(11), 3191-3214.