


# A Bibliometric Analysis of Scientific Production on the Balanced Scorecard

SAGE Open  
July-September 2025: 1–26  
© The Author(s) 2025  
DOI: 10.1177/21582440251375677  
journals.sagepub.com/home/sgo  


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## Abstract

This study updates the existing knowledge on the Balanced Scorecard (BSC) through a bibliometric analysis, providing a comprehensive review of the scientific literature on the topic. The main objective is to refresh previous bibliometric research by examining the volume, quality, and structure of publications related to BSC. Data were collected from Scopus and Web of Science—two databases known for their accuracy and reliability—covering articles published from 1992, the year BSC was introduced, through January 2025. The final sample includes 2,215 articles from Scopus and 2,427 from Web of Science. The findings reveal a growing academic interest in BSC, reflected in an increasingly broad and diverse body of literature. Kaplan and Norton are identified as the most prolific authors, while the United States leads in terms of the number of publications and citations. “Balanced Scorecard” is the most frequently used keyword in this field. This study extends previous bibliometric analyses by incorporating more recent data and a wider set of indicators, which helps to identify emerging trends and developments in BSC research. However, the analysis is limited to articles indexed in Scopus and Web of Science, which may exclude relevant contributions from other sources. From a practical perspective, the research offers valuable insights into key contributors and emerging trends, guiding future research and applications of BSC in performance management. On a societal level, it underscores the BSC’s potential to enhance organizational performance and decision-making processes, contributing to improved efficiency and effectiveness across various sectors.

## Keywords

balanced scorecard, bibliometric analysis, performance management, Kaplan and Norton, scientific production

## Introduction

The Balance Scorecard (BSC) has been extensively studied and implemented since its introduction in 1992. As research on the BSC has matured, it is timely to assess its progress and outline future directions (Kumar et al., 2024). With the emergence of scientific databases like Scopus and Web of Science, researchers can now access large bibliometric datasets with relative ease. Additionally, recently developed bibliometric software, such as VOSviewer, facilitates convenient data analysis (Singh & Arora, 2023). This scenario allows for a bibliometric analysis of the BSC that contributes new insights and perspectives on its development.

The BSC has attracted significant interest from both academics and professionals since its inception. It has evolved into a flagship tool for business control and Business Intelligence, as evidenced by the growing number of publications and professional events dedicated to

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it. As a topic matures in the academic community, literature reviews often summarize the accumulated knowledge. Following this trend, the objective of this study is to assess the evolution of the BSC from 1992 to the present, using bibliometric techniques—a method recognized by the academic community (Spinak, 1998). This study aims to provide a different approach from traditional literature reviews by analyzing a period from June 1992 to January 2025.

To gain insight into the current landscape of the BSC, a comprehensive search was conducted in Scopus and Web of Science, chosen for its accessibility, reliability, and extensive publication coverage. This study aims to bridge the gap between traditional literature reviews and previous bibliometric studies by applying indicators of quantity, quality, and structural aspects.

## The Balanced Scorecard

In an increasingly complex and dynamic world, business management is constantly evolving. Within this context, the concept of management control has gained relevance as a structured, performance-based system designed to monitor, compare, and adjust organizational actions. These systems use financial and non-financial indicators to assess whether strategic objectives are being effectively implemented and to support decision-making for future improvement.

From a scientific standpoint, numerous methodologies, models, and tools have been developed by scholars and institutions worldwide, contributing both theoretically and practically to organizational growth across public and private sectors. Notable contributions include Edward de Bono's *Lateral Thinking* (1970), Michael Porter's *Competitive Advantage* (1985) and *Value Chain* (2004), the Malcolm Baldrige Excellence Model (1987), the European Commission's *Integrated Approach and Logical Framework* (1993), Fred Pont's *The Creative Company* (2001), SWOT analysis (Fred, 2003), *Blue Ocean Strategy* by Kim and Mauborgne (2005), the *Business Model Canvas* (Ash Maurya, 2010; Osterwalder & Pigneur, 2011), and the PESTEL analysis.

Among these, the Balanced Scorecard (BSC) developed by Kaplan and Norton stands out for its originality and practical value. Andrade Garda et al. (2009) trace its origins to the French *Tableau de Bord* of the 1960s and highlight its transformation in the seminal 1992 Harvard Business Review article. The BSC integrates financial and non-financial indicators to align strategic and operational objectives. It offers a comprehensive view of organizational performance, addressing the limitations of traditional systems that focused narrowly on financial outcomes and short-term results.

This study applies bibliometric analysis, defined by Verbeek et al. (2002) as “the collection, management, and analysis of quantitative bibliographic data derived from scientific publications” (p. 181). Bibliometric methods allow for the mapping and systematization of the literature on a given topic, identifying key authors, works, and citation patterns (Dzikowski, 2018; Ramos-Rodríguez & Ruíz-Navarro, 2008).

Through this approach, we explore the intellectual structure and evolution of the BSC since R. Kaplan and Norton's (1992) publication. Using the Scopus and Web of Science (WoS) databases, 2,215 and 2,427 documents were retrieved, respectively. From these, 33 articles from Scopus and 30 from WoS, published between 1992 and 2025, were selected for in-depth analysis. These are detailed in Table 1 (Scopus) and Table 2 (WoS).

Once the relevant studies have been identified, we proceed with a thorough analysis and synthesis of their content to enhance the state of the art. For each selected work or author, a concise abstract is prepared, summarizing the objective, scope, and main findings. These summaries are presented in Table 3 (Scopus) and Table 4 (Web of Science). This process allows us to gain a comprehensive view of the prevailing trends in scientific research on the Balanced Scorecard (BSC). The resulting abstracts serve as the foundation for mapping and organizing the data obtained through bibliometric analysis, enabling the identification and interpretation of hidden patterns and insights.

## Method

A mixed-method study was conducted, specifically employing a content analysis based on a systematic literature review. According to Creswell (2014), mixed-method research involves gathering both quantitative and qualitative data, integrating them, and making interpretations by combining the strengths of both approaches. Consequently, our study adopts a longitudinal time frame, which spans an extensive period to focus on the evolution of the phenomenon under study, allowing for a clearer analysis of the process. This is primarily achieved using secondary sources, collecting information available from institutional websites, review articles, academic papers, and other scientific works. This approach establishes the origins, objectives, scope, and types of research in which the BSC has been applied.

Additionally, we draw on the work of Suárez-Gargallo and Zaragoza-Sáez (2023), who conducted a bibliometric study using Scopus and the Web of Science Core Collection database by Clarivate Analytics. Scopus, developed by Elsevier, is one of the largest abstract and citation databases of peer-reviewed literature, encompassing more than 27,000 active titles from over 7,000 international publishers, and covering

**Table 1.** Sample of Works on the BSC Resulting From the Search in the Scopus Database (1992–2025).

Year	Author	Article name	Journal
1992	Kaplan and Norton	The BSC—Measures that Drive Performance.	Harvard Business Review
1994	Kaplan	Management accounting (1984–1994): Development of new practice and theory.	Management Accounting Research
1995	G. Ross Baker and George H. Pink	A BSC for Canadian Hospitals.	Healthcare Management Forum
1996	Modak, M., Pathak, K., Ghosh, K.K.	Performance evaluation of outsourcing decision using a BSC and Fuzzy AHP approach: A case of the Indian coal mining organization.	Resources Policy
1997	Morey, D., and Frangioso, T.	Aligning an Organization for Learning- The Six Principles of Effective Learning.	Journal of Knowledge Management
1998	Hepworth	Weighing it up-a literature review for the balanced scorecard.	Journal of Management Development
1999	Rimar and Garstka	The “Balanced Scorecard”: development and implementation in an academic clinical department.	Journal of the Association of American Medical Colleges
2000	Hasan and Tibbits	Strategic management of electronic commerce: an adaptation of the balanced scorecard.	Internet Research
2001	Ling Sim and Chye Koh	Balanced scorecard: a rising trend in strategic performance measurement.	Measuring Business Excellence
2002	Lipe and Salterio	The balanced scorecard: Judgmental effects of common and unique performance measures.	The Accounting Review
2003	Radnor and Lovell	Defining, justifying, and implementing the BSC in the National Health Service.	Journal of Medical Marketing
2004	Vokurka	Operationalizing the BSC using the Malcolm Baldrige Criteria for Performance Excellence (MBCPE).	International Journal of Management and Enterprise Development
2005	Gumbus	Introducing the balanced scorecard: creating metrics to measure performance.	Journal of Management Education
2006	Rachman-Moore and Kenett	The use of simulation to improve the effectiveness of training in performance management.	Journal of Management Education
2007	Aravamudhan and Kamalanabhan	An AHP study on the critical factors for BSC implementation in Indian organizations.	International Journal of Business Innovation and Research
2008	Phusavat and Jaiwong	Formulating the strategy map: case studies on SMEs in Thailand.	International Journal of Management and Enterprise Development
2009	Lee and Hong	A BSC approach to performance management for a national R&D program me in Korea.	International Journal of Technology Intelligence and Planning
2010	Frezatti et al.	BSC e a estrutura de atributos da contabilidade gerencial: uma análise no ambiente brasileiro.	Revista de Administração de Empresas
2011	Jafari-Eskandari et al.	Using game theory and fuzzy MCDM to choose strategic orientation in uphold of private sector by approach balanced scorecard: Iranian industries.	International Journal of Services, Economics and Management
2012	Nwagbara	Beyond the allure of budgeting: assessing the suitability of budget for organizational performance in the 21st century.	Polish Journal of Management Studies
2013	Quesado et al.	BSC adoption in Portuguese organizations: Contingent and institutional variables.	Intangible Capital
2014	Zizlavsky	The balanced scorecard: Innovative performance measurement and management control system.	Journal of Technology Management & Innovation
2015	Ganga et al.	Administración estratégica: Aplicación del cuadro de mando integral (BSC) a una organización no gubernamental.	Revista de Ciencias Sociales
2016	Kunz, R.E., Siebert, J., Mütterlein, J.	Combining Value-focused Thinking and BSC to Improve Decision-making in Strategic Management.	Journal of Multi-criteria Decision Analysis
2017	Lederer, M., Kurz, M., Lazarov, P.	Making strategy work: A comprehensive analysis of methods for aligning strategy and business processes.	International Journal of Business Performance Management
2018	Zahoor and Sahaf	Investigating causal linkages in the balanced scorecard: an Indian perspective.	International Journal of Bank Marketing

(continued)

Table 1. (continued)

Year	Author	Article name	Journal
2019	Gallo et al.	Relations of Innovative Management Tool in Slovak Hotel Facilities.	Geo Journal of Tourism and Geosites
2020	Fatima and Elbanna	BSC in the hospitality and tourism industry: Past, present and future.	International Journal of Hospitality Management
2021	Olszańska and Prokopiuk	BSC as an effective method for process management in a transport company.	Zeszyty Naukowe. Transport/Politechnika Śląska
2022	Ta et al.	Factors affecting the application of BSC to enhance operational efficiency of listed companies: The case of Vietnam.	Cogent Business & Management
2023	Marković et al.	The Role of Information and Communication Technology in Improving the Financial Performance of Hospitals.	Tehnički Glasnik
2024	Ávila-Alejos et al	Synergy between Balanced Scorecard and OKRs to Improve Performance and Efficiency in an Electronic Security Company: A Case Study in Peru.	International Journal of Engineering Trends and Technology
2025	Huber et al.	Integrating the balanced scorecard and enterprise risk management: Exploring the dynamics between management control anchor practices and subsidiary practices.	Management Accounting Research

Source. Prepared by the authors based on information obtained from Scopus (2025).

disciplines in science, technology, medicine, social sciences, and arts and humanities. As of 2024, it contains over 87 million records dating back to 1788 and includes comprehensive metadata on documents such as citations, affiliations, keywords, and funding data. The inclusion of Scopus enables a broad and in-depth bibliometric analysis of scientific production related to the BSC, offering quantitative indicators (e.g., publication volume, citation counts), qualitative metrics (e.g., h-index, journal quartiles), and structural insights (e.g., co-authorship networks, institutional collaboration, and thematic clusters). This dual-database approach enhances the robustness of our findings by triangulating data across two of the most authoritative academic indexing platforms.

According to Bensman (2007), it is important to classify and evaluate the influence of research through reliable statistical measures. With the progress of technology and the emergence of extensive databases, bibliometrics has become an increasingly popular research approach (Bar-Ilan, 2008; Garfield, 1955). Its key advantage is the structured organization of scholarly information, encompassing data on publications, journals, researchers, institutions, and nations. Consequently, bibliometrics is particularly effective for examining patterns across subjects, journals, and academic disciplines.

Bibliometric techniques have been utilized in numerous fields, such as information and communication technology (Blažun Vošner et al., 2017) and knowledge management (Farooq, 2024).

The analysis was conducted in January 2025 and was carried out in two stages (Table 5). In the first stage, we searched for information, identifying available works using the keywords “Balanced Scorecard\*” in two major academic databases: Scopus and Web of Science (WoS). The initial search yielded a total of 10,900 documents (5,217 from Scopus and 5,683 from WoS). We then refined the search by document type (limited to articles) and source type (journals), which resulted in 7,118 articles (3,227 from Scopus and 3,891 from WoS) after removing duplicates, previous versions, book chapters, communications, and conference papers. Subsequently, we applied a final filter, including only those documents that referenced the Balanced Scorecard in their title, abstract, and/or keywords. This yielded a final total of 4,642 relevant articles (2,215 from Scopus and 2,427 from WoS; Figure 1).

This figure illustrates the systematic selection process used to identify relevant scientific articles for the bibliometric analysis. The total volume of documents was initially retrieved from two major databases—Scopus and WoS—yielding 10,900 records. Through a refinement process involving document type and source filters, and a final screening for direct reference to the Balanced Scorecard (BSC) in title, abstract, or

**Table 2.** Sample of Works on the BSC Resulting From the Search in the WoS Database (1996–2025).

Year	Author	Article name	Journal
1996	Kaplan and Norton	Using the balanced scorecard as a strategic management system	Harvard Business Review
1997	Schollinger; WE	A balanced scorecard for petroleum exploration	Oil Gas-European Magazine
1998	Chow, CW; Haddad, K and Williamson, J	The balanced scorecard: A potent tool for energizing and focusing healthcare organization management	Journal of Healthcare Management
1999	Martinsons, M; Davison, R and Tse, D	The balanced scorecard: a foundation for the strategic management of information systems	Decision Support Systems
2000	Curtright, JW; Stolp-Smith, SC and Edell, ES	Strategic performance management: Development of a performance measurement system at the Mayo Clinic	Journal of Healthcare Management
2001	Landin, A and Nilsson, CH	Do quality systems really make a difference?	Building Research and Information
2002	Griffith, JR and Alexander, JA	Measuring comparative hospital performance	Journal of Healthcare Management
2003	Carmona, S and Grönlund, A	Measures versus actions: the balanced scorecard in Swedish Law Enforcement	International Journal of Operations & Production Management
2004	Banker, RD; Chang, HS and Pizzini, Mj	The balanced scorecard: Judgmental effects of performance measures linked to strategy	Accounting Review
2205	Gosselin, M	An empirical study of performance measurement in manufacturing firms	International Journal of Productivity And Performance Management
2006	Holmes, JS; de Piñeres, SAG and Kiel, LD	Reforming Government Agencies Internationally: Is There a Role for the Balanced Scorecard?	International Journal of Public Administration
2007	Moullin, M; Soady, J; Gilligan, C	Using the Public Sector Scorecard in public health	International Journal of Health Care Quality Assurance
2008	Varma, S; Wadhwa, S and Deshmukh, SG	Evaluating petroleum supply chain performance Application of analytical hierarchy process to balanced scorecard	Asia Pacific Journal of Marketing and Logistics
2009	Chia, A; Goh, M and Hum, SH	Performance measurement in supply chain entities: balanced scorecard perspective	Benchmarking an international Journal
2010	Kim, YH and Kim, M	A New Approach for Assessment and Comparison of Websites: Using the Modified Balanced Scorecard and Analytical Hierarchy Process	Journal of Hospitality Marketing & Management
2011	Cugini, A; Michelon, G and Pilonato, S	Performance measurement in academic departments: the strategy map approach	Public Money & Management
2012	Nasiripour, AA; Kazemi, MAA and Izadi, A	Designing a hospital performance assessment model based on balanced scorecard	Healthmed
2013	Machado, MJCV	Balanced Scorecard: an empirical study of small and medium size enterprises	RBGN-Revista Brasileira de Gestao de Negocios
2014	Behrouzi, F; Shaharoun, AM and Ma'aram, A	Applications of the balanced scorecard for strategic management and performance measurement in the health sector	Australian Health Review
2015	Wake, NJ	The use of the balanced scorecard to measure knowledge work	International Journal of Productivity and Performance Management
2016	Smith, M and Loonam, J	Exploring strategic execution, A case study on the use of the balanced scorecard within an Irish hospital	Journal of Strategy and Management
2017	Pagotto, LM; Arthuzo, L; Monzoni, M Jan	Incorporating Children and Adolescents' Rights in Corporate Management: A Tool Based on Strategic Maps and the Sustainability Balanced Scorecard	Business and Human Rights Journal
2018	Al-Qubaisi, SS and Ajmal, M	Determinants of operational efficiency in the oil and gas sector A Balanced scorecards perspective	Benchmarking-An International Journal

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Table 2. (continued)

Year	Author	Article name	Journal
2019	Khalid, S; Beattie, C; Hampson, V	Incorporating the environmental dimension into the balanced scorecard A case study in health care	Meditari Accountancy Research
2020	Zhu, WD; Dai, XY; Chao, Z	How Intellectual Capital Combination Method Can Improve Corporate Performance in China's Information Technology Industry	IEEE Access
2021	Yeh, CH; Lin, HH; Lo, CW	Investigating the relationships between entrepreneurial education and self-efficacy and performance in the context of internet entrepreneurship	International Journal of Management Education
2022	Yeh, CH; Lin, HH; Lo, CW	Investigating the relationships between entrepreneurial education and self-efficacy and performance in the context of internet entrepreneurship	International Journal of Management Education
2023	Trisyulianti, E; Prihartono, B; Suryadi, K	A conceptual framework for a value-based sustainability balanced scorecard	Sustainable Development
2024	Awadallah, E	Advancing human and social dimensions in balanced scorecards for GCC corporations: a nuanced approach	Cogent Economics & Finance
2025	Quesado, P; Oliveira, HC and Silva, R	Integrating sustainability goals into the balanced scorecard: a bibliometric analysis of the sustainability balanced scorecard	Measuring Business Excellence

Source. Prepared by the authors based on information obtained from WoS (2025).

keywords, a corpus of 4,642 articles was obtained for further analysis.

### Bibliometric Mapping and Analysis

Following the document selection, a graphical analysis was conducted to explore the relationships and interconnections among key bibliometric indicators. Using VOSviewer software (version 1.6.20; van Eck & Waltman, 2010; Van Eck & Waltman, 2023), various visual mappings were developed. These included co-citation networks, document and citation volume representations, and keyword co-occurrence maps, all based on the Web of Science (WoS) Core Collection dataset.

VOSviewer was chosen for its robust visualization capabilities and clustering algorithms, which allow for the semantic structuring of citation behavior. This tool enables the identification of relational patterns among authors, journals, institutions, and conceptual domains within the Balanced Scorecard research field. Its widespread use and intuitive interface have been well documented in prior studies (Cobo et al., 2011; Moral-Muñoz et al., 2020).

### Results

According to Cadavid-Higuaita et al. (2012) and Alborn Morant and Leal-Rodríguez (2017), as cited in Suárez-Gargallo and Zaragoza-Sáez (2023), the bibliometric technique analyzes three distinct categories:

- 1) *Quantity or Activity Indicators*. These provide information on the volume of publications, most prominent authors, reviews, and countries.
- 2) *Quality or Impact Indicators*. These measure the effect a work has on other authors through the number of citations it receives.
- 3) *Structural or Relationship Indicators*. These identify and reveal the existing links between authors and their works. They also measure the connectivity between publications, authors, and areas of knowledge, typically associated with the construction and analysis of social networks, often referred to as sociograms (Rueda et al., 2007, cited in Suárez-Gargallo & Zaragoza-Sáez, 2023).
- 4) These categories are essential for understanding the overall landscape of research and its influence within a given field (Table 6).

### Global Distribution and Impact of Scientific Production: Scopus and Web of Science Overview

Figures 2 and 3 present a comparative overview of the geographical distribution and citation impact of scientific

**Table 3.** Summary of Works on BSC Compiled From the Scopus Database.

Year	Author	Description	
1992	Kaplan and Norton	Objective	The BSC is a framework comprising both financial and non-financial metrics that offers top executives a swift yet comprehensive view of the business.
		Scope	Broad scope: Transcends the academic world, reaching business leadership and the business world.
		Conclusions	The BSC provides information from four different perspectives while minimizing data overload by limiting the number of measures used.
1994	Kaplan and Norton	Objective	Reviewing three innovations in management accounting: costing, operational control systems, and the BSC.
		Scope	A bibliographic review spanning 10 years (1984–1994).
		Conclusions	Empirical research is advocated through close longitudinal partnerships with innovative organizations as a method to promote both the practice and education in management accounting.
1995	Ross Baker and Pink	Objective	Applying the widely used BSC in the industry to Canadian hospitals.
		Scope	Healthcare System in Canada.
		Conclusions	With the BSC, hospitals could obtain feedback that provides them with a balanced view of organizational performance, allowing them to see if improvements may have been achieved in one area at the expense of another.
1996	Modak, Pathak and Ghosh	Objective	Desarrollar un marco de evaluación del desempeño eficaz basado en el BSC y FAHP para analizar la idoneidad de subcontratar en alineación con el desempeño organizacional de la organización minera de carbón de la India.
		Scope	Case Study in the Coal Mining Sector in India. Principio del formulario
		Conclusions	Validates the BSC as a suitable analytical tool in formulating strategies and providing rational guidance to management regarding firm performance improvement.
1997	Morey and Frangioso	Objective	“Explore theoretical frameworks through which an organization can effectively foster learning.”
		Scope	A comprehensive theoretical study aimed at organizations in general.
		Conclusions	This article provides the framework for a new approach based on six rewarding principles of effective learning.
1998	Hepworth	Objective	Conduct a literature review of the BSC concept after its emergence and its remarkable impact.
		Scope	Six years of review, initial impact.
		Conclusions	The BSC can provide utility at all levels of management if managers understand the mechanics of the concept.
1999	Rimar and Garstka	Objective	Describe the version of the BSC developed for the Department of Anesthesiology at Yale University School of Medicine.
		Scope	Analyze the first year of implementation of BSC in health care centers (started in 1997).
		Conclusions	Believing that BSC can be of great value to a department, even if full implementation takes several years.
2000	Hasan and Tibbits	Objective	Analyzes a case of application of the BSC in a public service seeking to preserve the essence of the concept in its adaptation to the strategic management of electronic commerce.
		Scope	Case study aimed at managers for decision-making.
		Conclusions	The adaptation of the BSC applied to electronic commerce provides a reference for management in the face of changes in classic commercial models.
2001	Ling Sim and Chye Koh	Objective	Investigate whether there are links between business success and the use of strategically linked performance measures such as the BSC.
		Scope	Information collected from 83 electronics companies located within the US.
		Conclusions	Companies that strategically linked their goals to their performance measurement systems (BSC) performed better than those that did not.
2002	Lipe and Salterio	Objective	Examines the judgment effects of the BSC. How BSCs that include both common and particular measures affect superiors' evaluations.
		Scope	I study for both academics and managers. First to document a cognitive difficulty in using the BSC.
		Conclusions	The test shows that only common measures affect the evaluations of superiors, but not leadership and non-financial measures.

(continued)

**Table 3.** (continued)

Year	Author	Description	
2003	Radnor and Lovell	Objective	Study performance management/measurement systems for the health sector in Bradford, specifically applying the BSC.
		Scope	Bradford National Health System, United Kingdom, since 1997.
		Conclusions	An organization can take the BSC model and pragmatically adapt it to meet the challenging environmental conditions they face.
2004	Vokurka	Objective	Show how Malcolm Baldrige's Criteria for Performance Excellence emerge as a methodology to operationalize the BSC.
		Scope	Academic and business field. Only Malcolm Baldrige Criteria for Performance Excellence (MBCPE).
		Conclusions	This systematic process approach can be particularly effective for SMEs as they mature from a start-up phase.
2005	Gumbus	Objective	Apply the BSC to a university environment by creating metrics in the four dimensions of performance and comparing them with the real ones.
		Scope	Experiential exercise presents the concept of BSC and applies it in a university environment.
		Conclusions	Students are little familiar with BSC procedures but are very interested in learning about them.
2006	Rachman-Moore and Kenett	Objective	Simulate performance management systems developed at the School of Business Administration at the Israel College of Management.
		Scope	BSC Case Study at the School of Business Administration at the Israel College of Management.
		Conclusions	Students stated that the simulation significantly improved the effectiveness of the performance management teaching program.
2007	Aravamudhan and Kamalanabhan	Objective	To investigate the critical factors and sub-factors determining the adoption of BSC in Indian manufacturing and service sectors.
		Scope	Only included Indian organizations.
		Conclusions	Suggests a generic hierarchy model for Indian organizations to prioritize critical factors and formulate strategies to apply BSC.
2008	Phusavat and Jaiwong	Objective	Design a BSC approach that helps formulate a strategy map for three SMEs in Thailand as a basis for performance measurement.
		Scope	Study of three cases in Thailand. The data has been collected between January 2005 and June 2006.
		Conclusions	The alternative approach to formulating a strategy map appears to be useful and is generally accepted by the executives of the three participating SMEs.
2009	Lee and Hong	Objective	Apply a BSC approach to measure the performance of the National R&D Program in Korea and strengthen "accountability" in the public sector.
		Scope	The study provides a logically expanded reference for more variants of BSC.
		Conclusions	The study suggests a new perspective, a new variant of the BSC, that emphasizes contextual variables.
2010	Frezatti et al.	Objective	The results indicate for Portugal the close association between knowledge of the BSC and the level of training of employees, and between the implementation of the BSC and the completion of training courses.
		Scope	Investigate the association between the attribute structure of management accounting and the existence of the BSC in Brazilian companies.
		Conclusions	Influencing the implementation of the BSC in Brazilian companies. There is a significant relationship between BSC implementations and the profile of management accounting attributes in 3 of the 4 defined groups.
2011	Jafari-Eskandari et al.	Objective	Identify what strategies BSC players should adopt (financial, customer, internal process, and growth perspectives) to help the private sector.
		Scope	Game theory and management models in Iran.
		Conclusions	For Iran's private sector to be competitive, objectives and strategies of the main tasks must be designed as support based on the WCC.
2012	Nwagbara	Objective	Use the BSC model as an alternative method to the traditional budgeting system.
		Scope	Budgeting for companies.
		Conclusions	When the budget restricts the innovative, fluid, and value-generating ways of firms, productivity levels are adversely affected.

(continued)

**Table 3.** (continued)

Year	Author	Description	
2014	Zizlavsky	Objective	Gain knowledge and analyze the state of innovative activities and performance measurement in Czech SMEs through the BSC.
		Scope	Literature review on Czech small and medium-sized businesses.
		Conclusions	The paper will motivate further large-scale studies in the area of implementation of innovative performance measurement systems.
2015	Ganga et al.	Objective	Design a BSC that makes it possible to increase efficiency in the management of an NGO, and thus serve as an experience for other organizations.
		Scope	Case study, theoretical model design, ideal, abstract.
		Conclusions	The application of the BSC to a specific case has demonstrated its theoretical and empirical value and its usefulness in strategic management processes.
2016	Kunz, Siebert, Mütterlein	Objective	Outline a procedure that fuses BSC and value-centered thinking, preserving the strengths of each concept and eliminating its weaknesses.
		Scope	Hybrid theoretical study. Combination of theories.
		Conclusions	It demonstrates how scientific methods, such as value-centered thinking, can generate benefits for practitioners' instruments, such as the BSC, and how management tools can also enhance scientific methods.
2017	Lederer, Kurz, Lazarov	Objective	Conduct an extensive bibliographic review of business management methods developed to make available to researchers.
		Scope	Purely theoretical study.
		Conclusions	Data is provided for 50 methods from a set of 100 case studies that focus on the design and implementation of strategies in the field of business process management.
2018	Zahoor and Sahaf	Objective	Investigate whether empirical evidence supports sequential dependence between Norton and Kaplan's four BSC perspectives.
		Scope	Theoretical research from the perspective of developing nations.
		Conclusions	Employee learning and growth positively influences internal business processes, in turn influencing customer perspective.
2019	Gallo et al.	Objective	Emphasize the importance of using strategic management tools such as the BSC method in the hotel segment in Slovakia.
		Scope	Theoretical model applied in hotels in Slovakia.
		Conclusions	There is a statistically significant relationship between the size of hotel facilities and the use of BSC. More than 10% of hotels use it.
2020	Fatima and Elbanna	Objective	Fill the academic gap through the study of 106 articles from the best-ranked magazines on BSC, of which 37 belong to the tourism industry.
		Scope	Theory and bibliographic review applied to the Tourism Sector.
		Conclusions	Provides valuable information to identify current gaps impeding the development of BSC in the hospitality and tourism industry.
2021	Olszańska and Prokopiuk	Objective	Create a strategic scorecard for the transportation company in the context of streamlining transportation processes.
		Scope	Case study of a transport company in Poland.
		Conclusions	The BSC presented has contributed to the identification of vulnerable areas in the company. Thus, the company's processes were immediately streamlined.
2022	Ta et al.	Objective	The study focuses on the factors affecting the application of BSC in Vietnamese-listed companies.
		Scope	Data was collected from June 2021 to December 2021 from 274 companies listed on the Vietnamese stock market.
		Conclusions	The results show that all factors positively influence the application of the BSC. The higher the level of application, the greater its efficiency.
2023	Marković et al.	Objective	Determine if ICT helps reduce/rationalize costs and increase hospital revenues.
		Scope	The study implements the BSC in the Croatian health system.
		Conclusions	By applying ICT in the hospital, it is possible to reduce/rationalize costs and increase revenue, that is, increase company performance.

(continued)

**Table 3.** (continued)

Year	Author	Description	
2024		Objective	To evaluate the integration of BSC and OKR at SEGELEC, an electronic security company, to improve organizational efficiency in the short and long term, especially in the challenging context of the COVID-19 pandemic.
		Scope	The study analyzes the application of BSC and OKR at SEGELEC, measuring the impact on productivity, sales, and customer satisfaction during the first two quarters of 2024.
		Conclusions	The integration of BSC and OKR in SEGELEC improved both short-term and long-term performance, boosting productivity and sales growth. This combination proved effective in enhancing service delivery, customer satisfaction, and organizational efficiency, especially during the challenges of the COVID-19 pandemic.
2025	Huber et al.	Objective	To explore how the Balanced Scorecard (BSC) and Enterprise Risk Management (ERM) are integrated within a large corporation, focusing on the integration processes and the difficulties encountered. The study addresses the “how” question, rather than just the benefits and challenges.
		Scope	A longitudinal case study of Global Energy, a large energy corporation, analyzing how the BSC and ERM practices interact and integrate at the organizational, global, and local levels. It focuses on the integration processes and the social relationships between the involved actors.
		Conclusions	The integration of ERM with the BSC strengthens both systems, without suppressing alternative risk perspectives, and enhances the impact of ERM. Organizational structure and common mindset are key to the success of this integration, even driving changes in the BSC’s performance evaluation system.

Source. Prepared by the authors based on information obtained from Scopus (2025).

**Table 4.** Summary of Works on BSC Compiled From the WoS Database.

Year	Author	Description.	
1996	Kaplan and Norton	Objective	To explore how companies can use the Balanced Scorecard not only as a performance measurement tool but also as a new strategic management system that links long-term objectives with short-term actions.
		Scope	The analysis covers the evolution of the Balanced Scorecard from a performance measurement framework to a strategic management platform, highlighting four key processes: translating the vision, communicating and linking, business planning, and feedback and learning.
		Conclusions	The Balanced Scorecard enables companies to move beyond traditional financial indicators by aligning daily actions with long-term strategy. This approach provides a solid foundation for effective strategy execution through shared vision, organizational communication, integrated planning, and adaptive learning capabilities.
1997	Schollnberger, WE	Objective	To present a balanced scorecard specifically designed for petroleum exploration, aimed at achieving superior financial value growth through strategic exploration activities.
		Scope	The scorecard integrates four perspectives—financial, customer, innovation and learning, and internal business processes—and is anchored in the organization’s strategy. It focuses on measuring the critical success factors essential for maximizing value creation.
		Conclusions	A strategy-driven balanced scorecard enables petroleum exploration organizations to align their key performance indicators with value creation goals. By combining multiple perspectives, the scorecard provides a comprehensive framework to track and optimize the factors that contribute most to strategic success.
1998	Chow, CW; Haddad, K and Williamson, J	Objective	Introduce the balanced scorecard as a strategic tool to help healthcare organizations respond to external pressures and drive value creation.
		Scope	Covers sector challenges and presents administrator insights on designing effective scorecards for hospitals and subunits.
		Conclusions	Administrators recognize the scorecard’s value despite limited published cases; successful use depends on strategic alignment and customization.

(continued)

**Table 4.** (continued)

Year	Author	Description.	
1999	Martinsons, M; Davison, R and Tse, D	Objective	To develop a balanced scorecard (BSC) for information systems (IS) aligned with strategic management and performance evaluation.
		Scope	Adapts the BSC framework to business functions and projects, assessing IS from four perspectives: business value, user orientation, internal processes, and future readiness.
		Conclusions	Case study evidence shows that an IS BSC can support strategic IS management if development guidelines are followed, proper metrics are selected, and implementation barriers are addressed
2000	Curtright, JW; Stolp-Smith, SC and Edell, ES	Objective	To align organizational strategy with performance measurement in complex, integrated healthcare systems using a balanced scorecard approach.
		Scope	Focuses on the Mayo Clinic's outpatient operations, where internal stakeholders developed metrics to monitor performance in quality, operations, and finance.
		Conclusions	By tracking key indicators regularly, the system connects Mayo Clinic's vision and values with daily operations, supporting strategic performance management.
2001	Landin, A and Nilsson, CH	Objective	To determine whether Swedish construction companies measure the impact of their quality systems and assess the usefulness of the balanced scorecard for performance measurement.
		Scope	A study of twelve Swedish construction companies with established quality systems, analyzing four balanced scorecard perspectives to evaluate performance.
		Conclusions	The balanced scorecard is effective for measuring quality systems, but the learning perspective is neglected, and there is little evidence that investments improve organizational performance.
2002	Griffith, JR and Alexander, JA	Objective	To evaluate a set of nine multidimensional hospital performance measures derived from Medicare reports for their usefulness in assessing U.S. hospital performance.
		Scope	Analysis of content validity, reliability, sensitivity, comparison validity, and independence of performance measures across U.S. hospitals serving similar populations.
		Conclusions	Seven of the nine measures (excluding occupancy measures) are useful for evaluating hospital performance, reflecting correctable differences and opportunities for improvement.
2003	Carmona, S and Grönlund, A	Objective	To investigate the use of the balanced scorecard for measuring organizational performance in Swedish Law Enforcement, focusing on public sector policing.
		Scope	Study of performance measurement practices, including stakeholder perspectives and time dimensions, in Swedish police work using the balanced scorecard approach.
		Conclusions	The balanced scorecard highlighted measurement gaps, neglecting key areas like community policing and overemphasizing easy-to-measure indicators, reducing its operational effectiveness.
2004	Banker, RD; Chang, HS and Pizzini, MJ	Objective	To assess how detailed information about business unit strategies affects evaluations of managers' performance using strategically linked balanced scorecard measures.
		Scope	Experimental study analyzing the impact of strategically linked versus non-linked performance measures on evaluators' judgments of business unit managers.
		Conclusions	Evaluators prioritize strategically linked measures only when informed of strategy; otherwise, they rely more on common measures, confirming previous research findings.
2005	Gosselin, M	Objective	To assess the extent to which Canadian manufacturing firms adopt non-financial measures and use balanced scorecard-type systems aligned with strategy and structure.
		Scope	A survey of over 100 Canadian manufacturing firms examining the use of 73 performance measures and their relationship to strategic, structural, and environmental factors.
		Conclusions	Despite expert recommendations, few firms adopt integrated systems like the balanced scorecard, and those that do use non-financial measures no more than traditional users; contextual factors influence measure selection.
2006	Holmes, JS; de Piñeres, SAG and Kiel, LD	Objective	To explore the applicability of the Balanced Scorecard in reforming government agencies, particularly in developing countries.
		Scope	Review of BSC implementation in government agencies in developed countries, followed by analysis of challenges in applying it within developing country contexts.
		Conclusions	While the BSC can enhance performance and accountability, its implementation in developing countries is hindered by limited resources, political interference, and corruption.
2007	Moullin, M; Soady, J; Gilligan, C	Objective	To apply the Public Sector Scorecard (PSS) to evaluate and improve Sheffield's Stop Smoking Service in public health.
		Scope	Use of the PSS framework involving service user workshops and stakeholder meetings to align strategy, processes, and performance measures in a public health context.
		Conclusions	The PSS enhances service improvement by integrating strategy and performance with stakeholder needs, offering significant benefits for public and voluntary sector organizations.

(continued)

**Table 4.** (continued)

Year	Author	Description.	
2008	Varma, S; Wadhwa, S and Deshmukh, SG	Objective	To propose a method combining AHP and Balanced Scorecard for evaluating the performance of the petroleum industry supply chain.
		Scope	Application of BSC and AHP using expert opinions to assess and weight performance factors across customer, financial, internal process, and learning perspectives in a process industry context.
		Conclusions	Customer perspective is most critical, followed by financial and process factors; the approach allows nuanced performance comparisons in process industry supply chains, incorporating both qualitative and quantitative insights.
2009	Chia, A, Goh, M and Hum, SH	Objective	To explore what senior supply chain executives measure and how they perceive performance metrics using the Balanced Scorecard framework.
		Scope	Survey of 113 executives from client firms and logistics providers reveals a dominance of financial and customer-focused metrics, with limited adoption of a fully balanced approach.
		Conclusions	Firms prioritize traditional and tangible measures, indicating a need for broader, more strategic performance management across all supply chain entities using the BSC.
2010	Kim, YH and Kim, M	Objective	Develop a website evaluation instrument using a modified Balanced Scorecard (BSC) and the Analytic Hierarchy Process (AHP).
		Scope	Applies the instrument to compare website performance in the hospitality and tourism sectors based on critical success factors.
		Conclusions	User-friendliness, user security, and the customer perspective were the most important evaluation criteria across both sectors
2011	Cugini, A; Michelin, G and Pilonato, S	Objective	To implement and assess the Balanced Scorecard strategy map as a performance measurement system in an academic department. To explore its effectiveness in aligning mission, strategy, and operational goals within a complex public service organization.
		Scope	Focuses on a university department as a case study but extends relevance to similar public sector organizations. Covers the adaptation of BSC perspectives and objectives tailored to academic activities, including research, teaching, and administration.
		Conclusions	The BSC strategy map effectively clarifies strategy, links objectives to outcomes, and improves performance monitoring. It fosters coordination among stakeholders and supports decision-making, making it highly recommended for academic and public institutions
2012	Nasiripour, AA; Kazemi, MAA and Izadi, A	Objective	Develop and validate a balanced scorecard model for Iranian social security hospitals. Focus on five key perspectives to assess hospital performance.
		Scope	Adapted from ten successful models and validated by expert surveys. Applicable to all social security hospitals in Iran.
		Conclusions	The model is flexible and can be adjusted to local hospital needs. It supports performance measurement and comparison across hospitals.
2013	Machado, MJCV	Objective	Analyze the use and awareness of the Balanced Scorecard among Portuguese SMEs. Identify factors explaining its low familiarity.
		Scope	Interviews with management accounting professionals in 58 industrial companies. Covers eleven districts in Portugal.
		Conclusions	Few companies use or know the Balanced Scorecard. Awareness depends on personal and company characteristics like education, age, and size.
2014	Behrouzi, F; Shaharoun, AM and Ma'aram, A	Objective	The objective was to analyze the status of BSC in the health sector over the past decade and propose a generic approach focused on perspectives, indicators, and BSC generations.
		Scope	The study reviewed 29 articles since 2002, evaluating BSC generations, performance perspectives, key indicators, and auxiliary tools in healthcare organizations.
		Conclusions	It concludes that the internal process perspective is the most used, recommending cascaded BSC for large organizations and greater involvement of medical staff in its development.
2015	Wake, NJ	Objective	The purpose of this paper is to question whether the balanced scorecard is an appropriate control mechanism for managing knowledge workers.
		Scope	The study uses a single-company case study to explore how management control is exercised over research and development employees.
		Conclusions	The balanced scorecard is not effective as a direct control tool for knowledge workers, but it helps align their work with organizational strategic objectives.

(continued)

**Table 4.** (continued)

Year	Author	Description.	
2016	Smith, M and Loonam, J	Objective	The purpose of this paper is to explore how the balanced scorecard can support improved service delivery in a hospital department under performance and budget pressures.
		Scope	The study conducts an exploratory case study of a single Irish hospital unit using qualitative interviews, document review, and direct observation
		Conclusions	The research resulted in the development of a strategy map and a proposed balanced scorecard tailored for a healthcare organization.
2017	Pagotto, LM; Arthuzo, L; Monzoni, M Jan	Objective	The paper aims to develop a management tool that integrates children's and adolescents' rights into corporate strategy using strategic maps and the Sustainability Balanced Scorecard (SBSC).
		Scope	The study focuses on large-scale investment projects in Brazil, addressing the gap between legal protections for children and adolescents and their actual consideration in corporate risk management and decision-making processes.
		Conclusions	The proposed tool enables companies to align their strategies with the rights of children and adolescents, facilitating the integration of these rights into business operations and enhancing corporate accountability in line with sustainability and human rights standards.
2018	Al-Qubaisi, SS and Ajmal, M	Objective	The purpose of this paper is to empirically examine the relationship between organizational culture and operational efficiency through the mediating effect of knowledge management practices from a balanced scorecard perspective.
		Scope	The study tested three hypotheses using structural equation modeling and confirmatory factor analysis on 568 responses from a major oil and gas company in the UAE.
		Conclusions	The findings confirm that knowledge management practices significantly mediate the relationship between organizational culture and operational efficiency, reinforcing their joint impact in the oil and gas sector.
2019	Khalid, S; Beattie, C; Hampson, V	Objective	This study aims to explore how the balanced scorecard can be adapted to incorporate environmental performance in a healthcare setting.
		Scope	Using a qualitative case study approach informed by stakeholder theory, the research analyzes interviews and documents from a regional public hospital in Australia.
		Conclusions	The study identifies various integration models for environmental dimensions in the BSC, confirming their contingent nature and the critical role of organizational vision and environmental strategy.
2020	Zhu, WD; Dai, XY; Chao, Z	Objective	This study aims to demonstrate how intellectual capital (IC) dimensions enhance corporate performance and to identify optimal IC combinations for diversified firms using limited resources.
		Scope	A universal theoretical framework based on Balanced Scorecard (BSC) theory and the rough set method is applied to 539 IT industry firms in China to empirically analyze IC combinations under varied conditions.
		Conclusions	IC dimensions impact performance collectively rather than individually, with relational capital being most critical, and findings help firms optimize IC distribution strategies in diverse settings.
2021	Yeh, CH; Lin, HH; Lo, CW	Objective	This study investigates how Internet entrepreneurial self-efficacy mediates the relationship between entrepreneurial education and entrepreneurial performance, assessed via the Balanced Scorecard dimensions.
		Scope	Using survey data from 160 Internet entrepreneurs, the study applies PLS-SEM to examine the effects of entrepreneurial education on performance through self-efficacy.
		Conclusions	Internet entrepreneurial self-efficacy fully mediates the relationship between education and performance across all four BSC dimensions, offering key insights for theory and practice in Internet entrepreneurship.
2022	Yeh, CH; Lin, HH; Lo, CW	Objective	To investigate how Internet entrepreneurial self-efficacy mediates the relationship between entrepreneurial education and entrepreneurial performance, using the Balanced Scorecard framework.
		Scope	The study analyzes data from 160 current Internet entrepreneurs using Partial Least Squares Structural Equation Modeling, focusing on the four BSC performance dimensions: financial, customer, internal processes, and learning and growth.
		Conclusions	Entrepreneurial education enhances performance only indirectly through self-efficacy, which fully mediates the relationship; no direct effect of education on performance was found, highlighting the central role of self-efficacy in Internet entrepreneurship.

(continued)

**Table 4.** (continued)

Year	Author	Description.	
2023	Trisyulianti, E; Prihartono, B; Suryadi, K	Objective	To develop a conceptual framework using six business process values to create a more proportional and resource-efficient Sustainability Balanced Scorecard (SBSC).
		Scope	The study analyzed qualitative data from three Indonesian state-owned plantation enterprises to validate performance indicator criteria aligned with six values: efficiency, quality, agility, compliance, integration, and networking.
		Conclusions	The six values effectively guide managers in formulating relevant and proportional performance indicators for SBSC, ensuring better resource allocation across companies.
2024	Awadallah, E	Objective	To explore the integration of human and social metrics into the Balanced Scorecard to better reflect modern corporate responsibility.
		Scope	Study involving 89 GCC firms and 201 executives, including interviews, analyzing challenges and opportunities for incorporating ESG, DEI, and sustainability into the BSC.
		Conclusions	There is a gap between current metrics and social demands, with barriers such as resistance and data issues, yet the importance of advancing toward a more inclusive BSC is recognized.
2025	Quesado, P; Oliveira, HC and Silva, R	Objective	This study aims to analyze international publications on the Sustainability Balanced Scorecard (SBSC) and the integration of Sustainable Development Goals (SDGs) into the Balanced Scorecard, identifying research trends and future opportunities.
		Scope	Using bibliometric techniques, 96 articles from Web of Science and Scopus were systematically reviewed to map key themes and country contributions related to SBSC and SDGs.
		Conclusions	The integration of SDGs and BSC is an emerging topic with growing academic interest, highlighting four research clusters and offering valuable insights for researchers and organizations seeking to design or improve SBSC frameworks.

Source. Prepared by the authors based on information obtained from WoS (2025).

**Table 5.** Stages Implemented in the Development of Bibliometric Analysis.

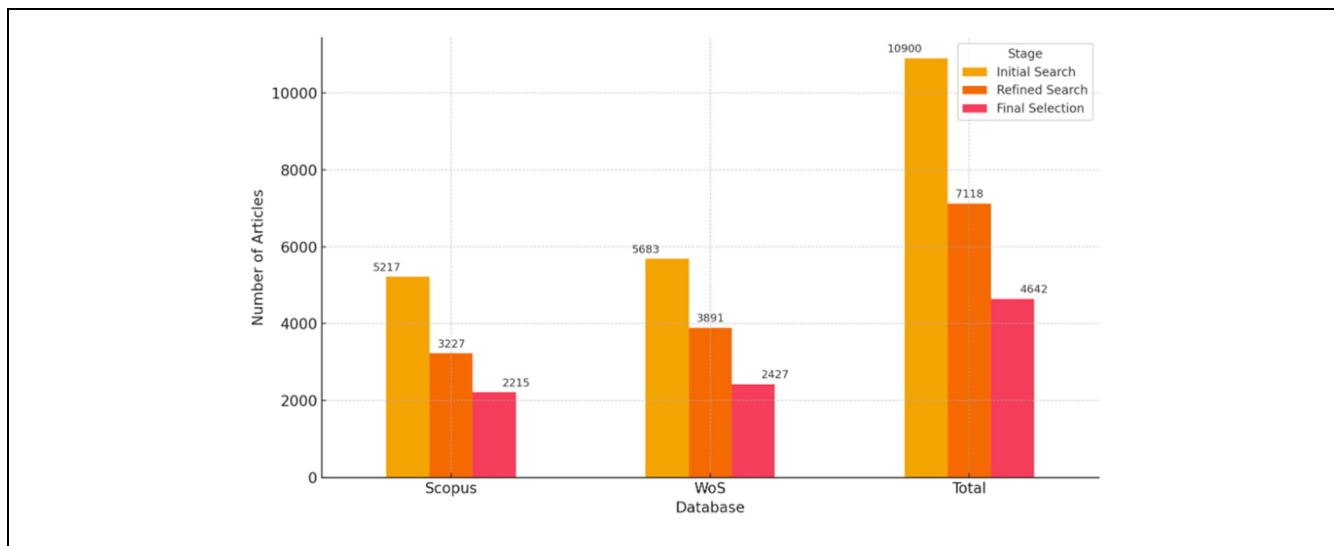
Background				
Stage I	Step	Description	Total	
			Scopus	WoS
Information search Scientific Articles	1	Search words: (TITLE-ABS-KEY (Balanced Scorecard) OR TITLE-ABS-KEY (BSC)	5,217	5,683
	2	Document type: Article	3,227	3,891
	3	Documents that contained in their title, summary, and/or keywords, elements referring to the Balanced Scorecard.	2,215	2,427
Stage 2 Creation of bibliometric maps with VOSviewer	Step	Description	Total	
	4	Figures 2 and 3. Full counting method: Minimum number of documents per country	66 countries	40 countries
	5	Figures 4 and 5. Full counting method applied: Minimum threshold of keyword occurrences	684 terms	211 terms
	7	Figures 6 and 7. Full counting method: Minimum number of co-citations per reference	132 Items	132 Items
	8	Figures 8 and 9. Full counting method: Minimum number of co-citations per author	20 citations	20 citations

Source. Prepared by the authors based on Suárez-Gargallo and Zaragoza-Sáez (2023).

publications indexed in Scopus and Web of Science (WoS), respectively. These visualizations reflect the global relevance and academic interest in the research topic, with contributions from both developed and emerging regions.

In Figure 2 (Scopus), the United States emerges as the leading contributor, with 299 documents and a total of

16,708 citations, underlining its central role in the field. England and Iran follow with 173 documents each, accumulating 2,633 citations, indicating a balanced scholarly presence across different regions. China contributes 128 documents and 1,648 citations, while Spain records 117 documents and 1,613 citations. Notably, Germany stands



**Figure 1.** Document selection process for balanced scorecard publications.

Note. Data obtained from Scopus and Web of Science (WoS) using the keyword “Balanced Scorecard.” The filtering criteria include document type (articles), source type (journals), and presence in title, abstract, or keywords\*.

**Table 6.** List of Bibliometric Indicators of Quantity, Quality, and Structure.

Indicator category	Id	Name	Concept
Quantity indicators	C-An	Number of publications per year	It presents a trend of the importance of the topic over time.
	C-A	Number of publications per author	It allows you to find the authors with the greatest number of publications on the topic.
	C-R	Number of publications per magazine	It allows you to find the participation of each magazine in the dissemination of knowledge on the subject.
	C-Ri	Number of publications per magazine of interest	It allows you to find the participation of each magazine of interest in the dissemination of knowledge on the subject.
	C-P	Number of publications per country	It allows you to find the participation of each country in the generation of knowledge on the subject.
	C-Id	Number of publications per language	It allows you to find the languages with the greatest participation in the dissemination of knowledge on the subject.
	C-TP	Number of publications by type	It allows you to find the type of publications that are made on the topic (for example, essay, literature reviews, technical reports, etc.).
	C-In	Number of publications per institution	It allows you to find the institutions that participate to a greater extent in the generation of knowledge around the topic.
	C-CA	Number of publications by number of authors	It allows you to find the existence or not of a Pareto of authors.
	C-CR	Number of publications by number of magazines	It allows us to find the existence or not of a Pareto of magazines.
	C-CIn	Number of publications by number of institutions	It allows us to find the existence or not of a Pareto of institutions.
	C-CP	Number of publications by number of countries	It allows us to find the existence or not of a Pareto of countries.
	C-AC	Number of publications by knowledge area	It allows you to find the areas that generate the most knowledge about the topic.

(continued)

**Table 6.** (continued)

Indicator category	Id	Name	Concept
Quality indicators	I-A	Number of citations per author	It allows you to find the authors who have had the greatest impact on research on the topic.
	I-R	Number of citations per journal	It allows you to find the magazines that have had the greatest impact on the dissemination of literature on the subject.
	I-In	Number of citations per institution	It allows you to find the institutions that have had the greatest impact on the generation of literature on the topic.
	I-R(n)	Number of citations per journal / number of publications per journal	It allows you to find the journals that have had the greatest impact on the dissemination of literature on the topic, neutralizing the effect of the number of publications.
	I-An(n)	Number of citations per year / age / publication	It allows us to find the years of greatest productivity in the generation of knowledge on the subject, neutralizing the effect of age and number of publications.
Structure indicators	E-N	Number of nodes	Number of authors that make up the network.
	E-D	Network density	Indicates the intensity of the connections in the network. 1: all authors are connected to each other. 0: there are no links in the network.
	E-Dg	Geodetic distance	Minimum number of routes that must be traveled to get from one author to another.
	E-Dm	Network diameter	Maximum geodesic distance existing in the network.
	E-Dc	Expected characteristic distance	Expected value of the distance between two connected authors (number of authors in the middle).
	E-Cc	Number of connected components	Several sub-networks formed. Indicates the level of network connectivity.
	E-Pv	Average number of neighbors	Average number of authors with whom an author is directly related.
	E-Ar	Degree of network clustering	Indicates how robust the author's sub-networks are. Authors connected to more than two neighbors are assigned a value of 0.
	E-Cr	Network centralization	Indicates the level of centralization or decentralization of a network. Compare the level of centralization of the network with an ideal star of the same number of nodes.
	E-Hr	Network heterogeneity	Indicates the tendency of a network to contain axis authors (center them in sub-networks).
	E-Na	Number of isolated nodes	Indicates the number of authors without connections that the network contains.
	E-CN	Components connected per node	Indicates the percentage of dispersion of the authors in isolated subnetworks.
	E-NaN	Isolated nodes per node	Indicates the percentage of dispersion of the authors in independent authorships.

Source. Prepared by the authors based on Cadavid-Higueta et al. (2012).

out with 1,843 citations from 89 documents, and India shows a particularly high citation impact with 3,204 citations across 86 documents, highlighting the quality and influence of its research outputs.

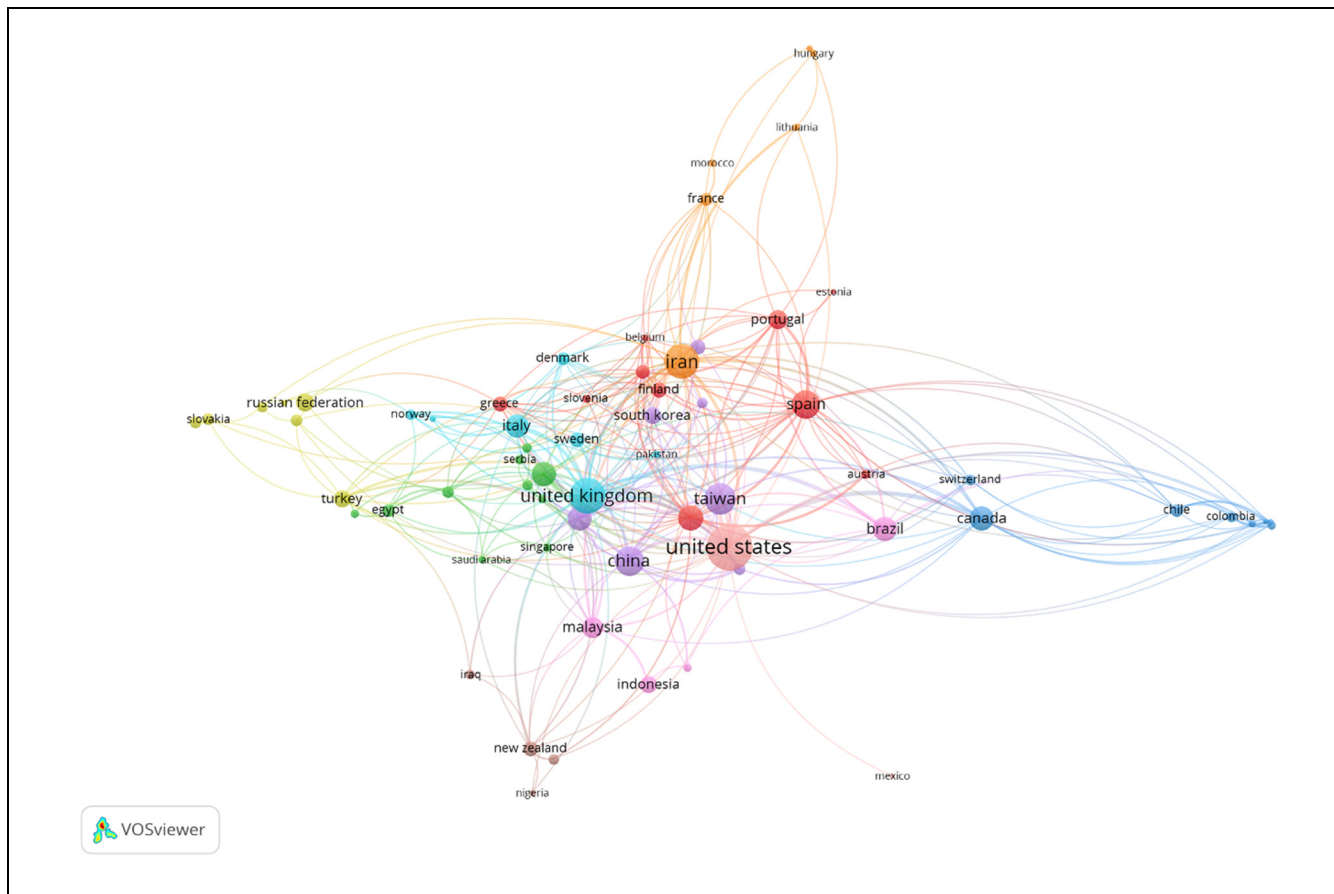
In Figure 3 (WoS), the United States maintains its leading position with 206 documents and 18,917 citations, demonstrating consistent global leadership. England follows with 118 documents and 6,215 citations, while Taiwan appears as a relevant actor with 82 documents and 2,154 citations. Australia contributes 75 documents with a notable 3,610 citations, and Canada with 61 documents and 1,977 citations, both showing strong citation performance relative to output.

Together, these figures reveal a broad and diverse international engagement with the topic, confirming its multidisciplinary and cross-regional appeal. The data

also highlight regional strengths, with notable citation efficiencies in countries like India, Australia, and Germany, and reinforce the importance of examining both the volume and the impact of scientific output to better understand global research dynamics.

### *Keyword Analysis in BSC Research: Scopus and Web of Science Overview*

Figures 4 and 5 provide a comparative visualization of the most frequently used keywords in scientific literature related to the Balanced Scorecard (BSC), based on data retrieved from the Scopus and Web of Science (WoS) databases, respectively. These keyword co-occurrence maps highlight the thematic focus and conceptual associations in the field over time.



**Figure 2.** Graphic representation of the volume of documents by country (Scopus).

In Figure 4 (Scopus), the keyword “balanced scorecard” stands out as the most prominent, followed by “management” and “performance measurement.” These terms are frequently linked to related concepts such as “strategic planning,” “total quality management,” “benchmarking,” “performance management,” “organization and management,” “sustainable development,” “sustainability,” and “healthcare quality.”

Of a total of 13,623 keywords identified in 2,215 articles, the term “balanced scorecard” appears 2,349 times, representing 17.25% of the total, highlighting the central role of the BSC in the research landscape and its broad applicability in multiple fields.

In Figure 5 (WoS), the analysis reveals a similar pattern, where “balanced scorecard” is again the dominant keyword, followed by “management” and “performance.” These results are consistent with the Scopus findings and reinforce the relevance of the Balanced Scorecard (BSC) as a central concept in organizational and strategic management studies.

Among the 2,311 keywords extracted from 2,427 articles, the term “balanced scorecard” appears 647 times, representing 28.01% of the total, a proportion that

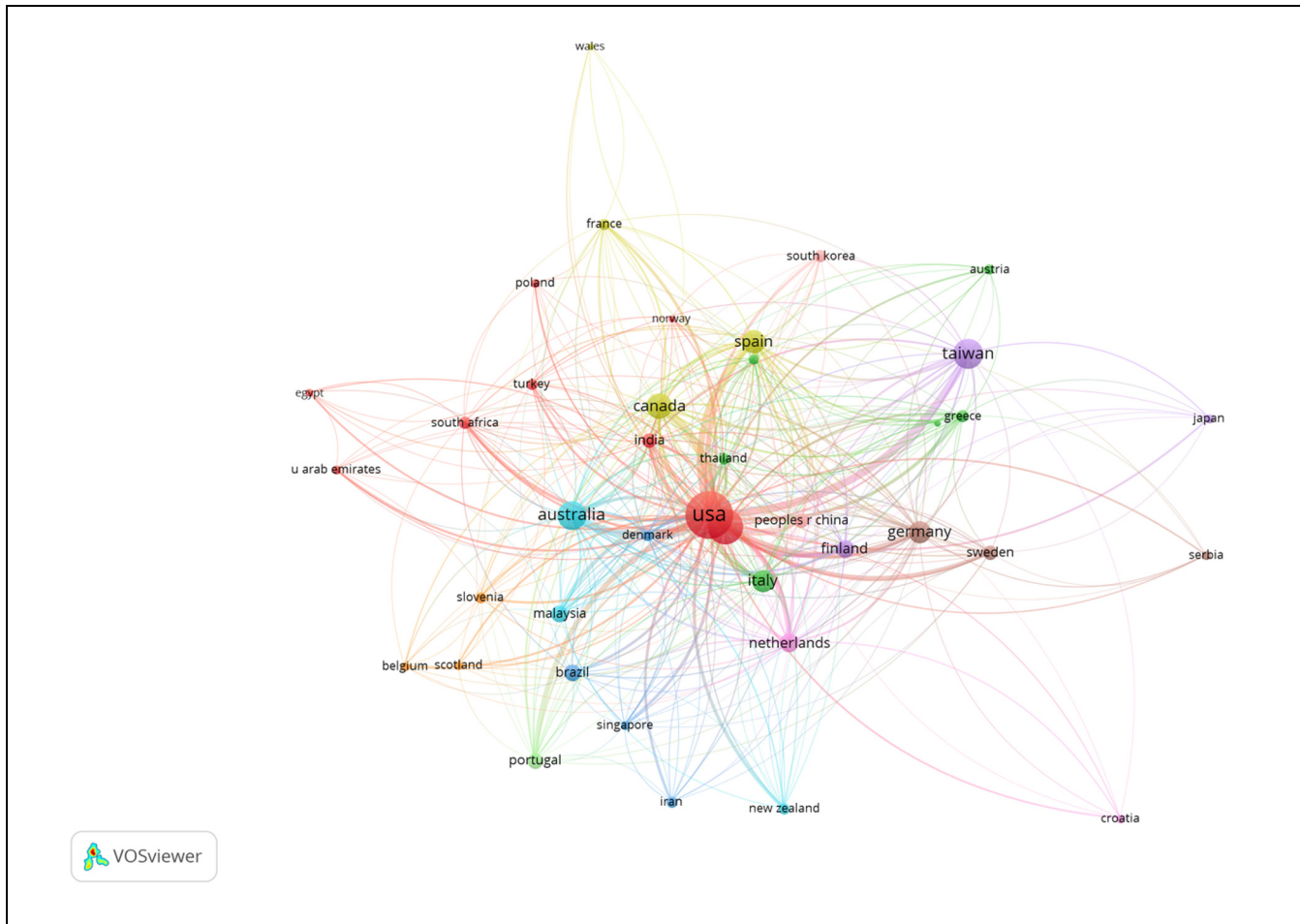
underscores its high relevance and enduring importance in academic discourse.

Taken together, Figures 4 and 5 highlight the semantic and conceptual consistency of BSC-related research across major bibliographic databases. The recurring appearance of terms related to performance and strategic management illustrates the integrative role of BSC and its adaptability to diverse organizational contexts, such as sustainability, healthcare, and quality improvement initiatives.

### Quality or Impact Indicators

**Most Cited References.** A critical measure of academic influence in bibliometric studies is the citation count per publication, which reflects the impact and relevance of foundational works within a field.

In the Scopus database, the most cited work is by R. Kaplan and Norton (1992), with an impressive 7,700 citations, underscoring its foundational role in the development and dissemination of the Balanced Scorecard (BSC) framework. Other notable works include R. S. Kaplan and Norton (2000) with 688 citations, Bhagwat and



**Figure 3.** Graphic representation of the volume of documents by country (WoS).

Sharma (2007) with 509 citations, and Ittner et al. (2003) with 482 citations. These contributions have played a pivotal role in both shaping theoretical and practical applications of performance measurement and strategic management.

In Web of Science (WoS), the citation landscape also highlights the foundational nature of Kaplan and Norton's contributions. Their 1992 article leads with 5,071 citations, followed by their 1996 publication with 1,788 citations. Additional key references include Srivastava et al. (1998) with 1,214 citations and Jensen (2002) with 1,189 citations. These documents continue to be widely referenced, indicating their sustained influence across academic and professional domains.

### *Structural or Relationship Indicators*

**Article Co-Citation Analysis.** Figure 6 (Scopus database) illustrates the article co-citation network, revealing proximity relationships among authors based on the frequency with which their works are cited together. Notably, the

foundational contributions of Kaplan and Norton emerge as central nodes within the network, particularly the seminal texts: “*The Balanced Scorecard: Translating Strategy into Action*” (1996), “*Strategy Maps: Converting Intangible Assets into Tangible Outcomes*” (2004), and the influential article “*Using the Balanced Scorecard as a Strategic Management System*,” published in Harvard Business Review (1996). These key publications exhibit a high volume of co-citations, underscoring their pivotal role in shaping the theoretical and practical discourse surrounding the Balanced Scorecard (BSC).

The network comprises 77 co-cited articles, grouped into three distinct clusters based on citation proximity:

- Cluster 1 (Red): 30 articles
- Cluster 2 (Purple): 25 articles
- Cluster 3 (Green): 22 articles

Of particular significance is the enduring influence of R. S. Kaplan and Norton's (1996) work, which exhibits the highest number of linkages within the network (**72 links**;

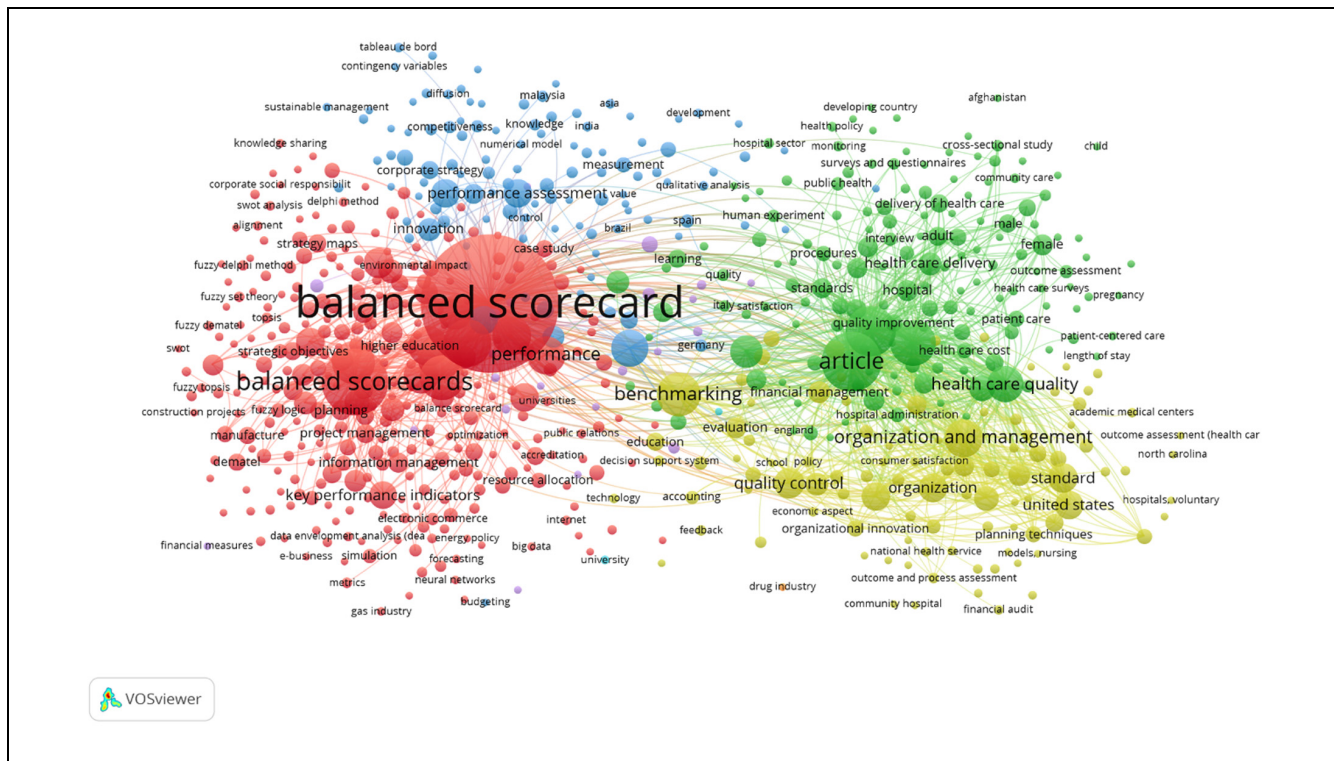


Figure 4. Co-occurrence of keywords, prepared from the Scopus database, through the application of the VOSviewer program.

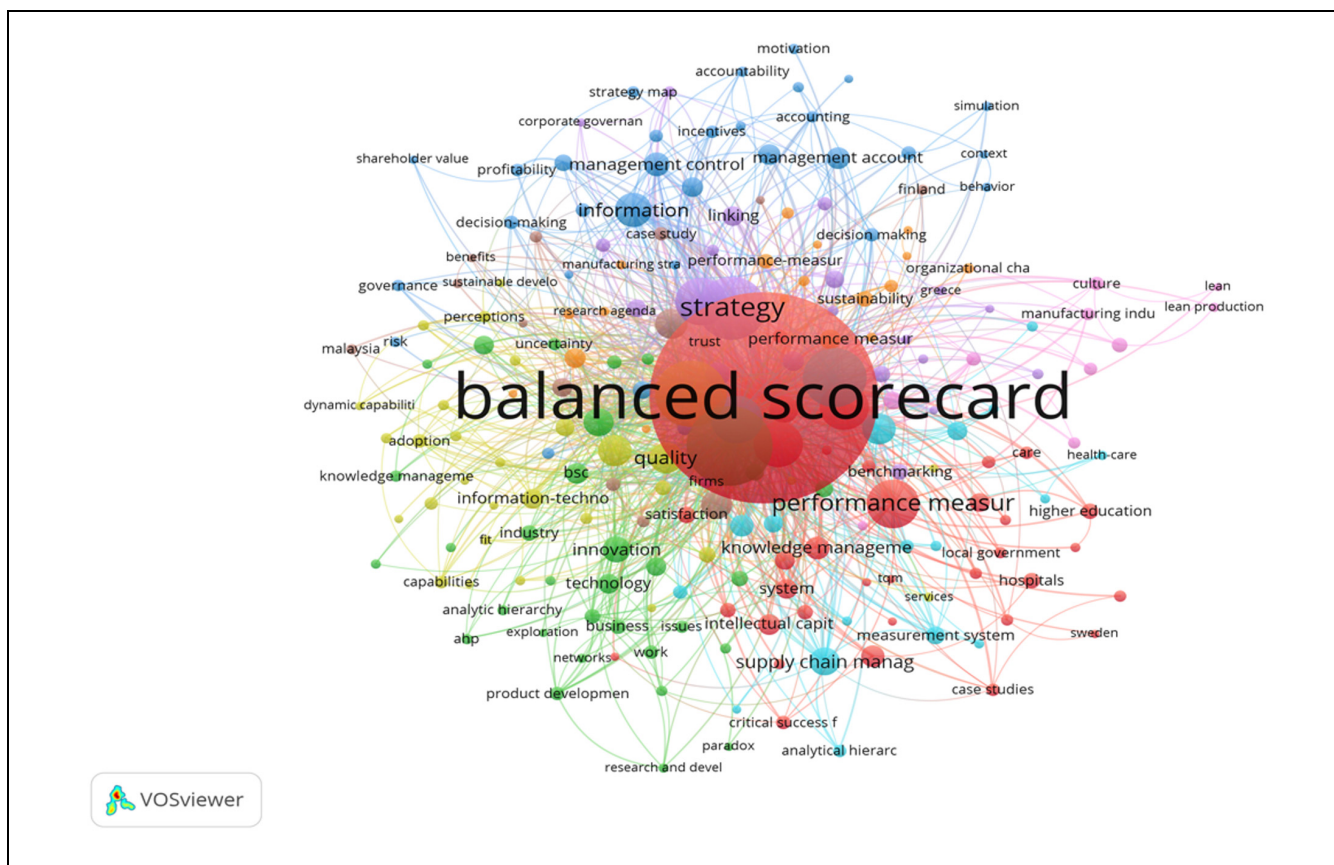
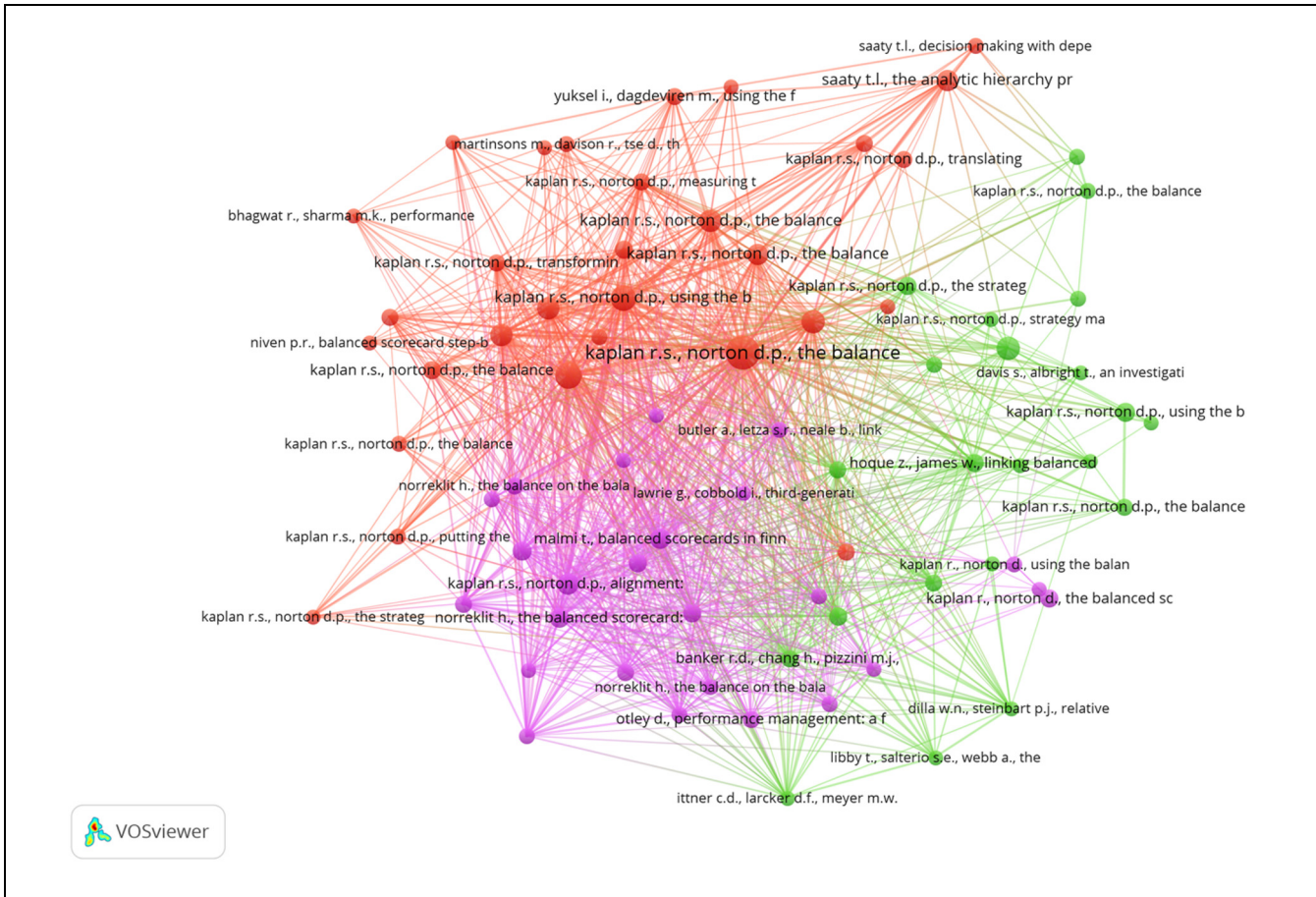


Figure 5. Co-occurrence of keywords, prepared from the WoS database, through the application of the VOSviewer program.



**Figure 6.** Article co-citation analysis database Scopus (77 items distributed in 3 clusters).

**total link strength: 814**), thereby establishing it as a central reference point within Cluster 1.

Regarding the Web of Science (WoS) database, Figure 7 presents a comparable co-citation analysis. Here again, the centrality of Kaplan's contributions is evident, particularly the following landmark publications: “*The Balanced Scorecard: Measures That Drive Performance*” (1992), “*Using the Balanced Scorecard as a Strategic Management System*” (1996), and “*Having Trouble with Your Strategy? Then Map It*” (2000). These documents also demonstrate a high degree of co-citation frequency, reaffirming their foundational status in the literature.

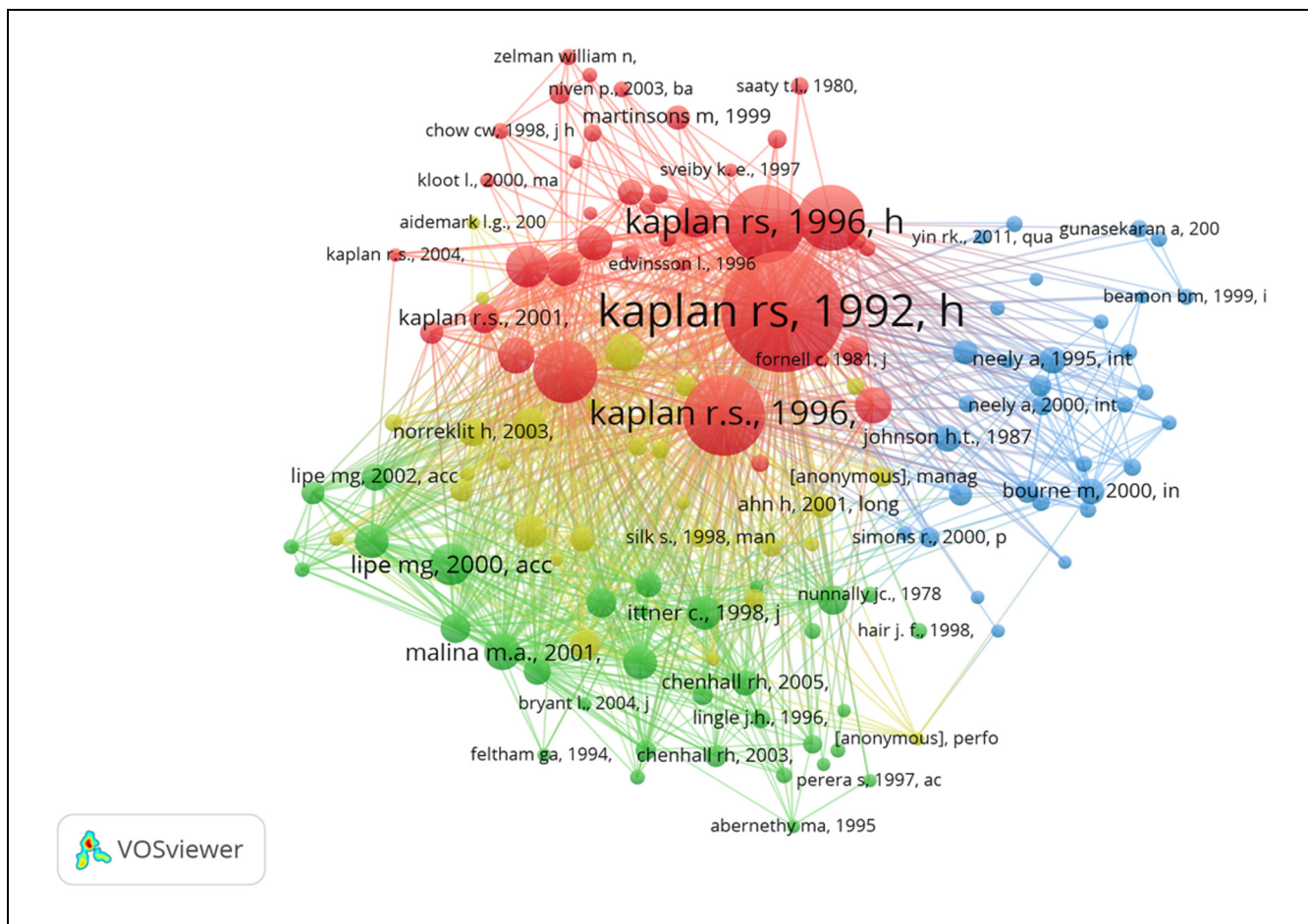
In the WoS network, a total of 132 co-cited articles are organized into five thematic clusters, as follows:

- Cluster 1 (Red): 33 articles
- Cluster 2 (Green): 33 articles
- Cluster 3 (Purple): 32 articles
- Cluster 4 (Yellow): 23 articles
- Cluster 5 (Light Purple): 11 articles

These clusters represent cohesive research fronts, with Kaplan's early works acting as intellectual anchors that shape the structure and evolution of Balanced Scorecard scholarship.

*Intellectual Influence and Thematic Centrality of the BSC: Co-Citation Analysis in Scopus and WoS.* Figures 8 and 9 provide a focused co-citation analysis based on the proximity of academic works to the influential publication “*The Balanced Scorecard: Translating Strategy into Action*” by R. S. Kaplan and Norton (1996). This approach allows for a more granular understanding of the intellectual structure surrounding this seminal work within two major bibliographic databases: Scopus and Web of Science (WoS).

Figure 8 - Scopus database illustrates a densely connected co-citation network surrounding R. S. Kaplan and Norton's (1996) work, underscoring its status as a foundational reference in studies related to strategic performance management. The tight clustering of nodes indicates a strong thematic cohesion, in which this



**Figure 7.** Article co-citation analysis database WoS (132 items distributed in 5 clusters).

publication is frequently co-cited alongside studies focused on management control systems, intangible asset measurement, and strategic alignment. This network structure reinforces the notion that the BSC has not only been widely cited but also internalized as a dominant conceptual framework across organizational research.

In contrast, Figure 9– Web of Science (WoS) database presents a more diversified co-citation network, highlighting the cross-disciplinary application of the BSC approach. Although R. S. Kaplan and Norton’s (1996) work remains the central hub, the peripheral nodes in this network connect to literature from fields such as corporate governance, innovation, public management, and strategic planning. This diversity in co-citation relationships suggests that the BSC has transcended its original context in business management to serve as a conceptual tool adopted across various disciplines. The presence of multiple thematic clusters in WoS also reflects an

expanded scope of influence, signaling the BSC’s adaptability and relevance in emerging areas of research.

Comparative Insight: Although both Scopus and WoS analyses confirm the centrality and enduring influence of *The Balanced Scorecard: Translating Strategy into Action* (1996), they offer complementary perspectives:

- Scopus emphasizes the work’s role within a tightly-knit body of literature focused on strategic performance frameworks.
- WoS highlights a more interdisciplinary reach, underscoring its utility in diverse academic and applied fields.

Together, Figures 8 and 9 reaffirm the pivotal role of R. S. Kaplan and Norton’s (1996) publication in shaping not only the academic discourse but also managerial practice, as evidenced by its sustained prominence in co-



citation networks across two of the most reputable citation databases.

## Discussion

This bibliometric study on the Balanced Scorecard (BSC) represents a significant contribution to understanding the evolution, scope, and academic impact of this strategic management tool since its introduction by Kaplan and Norton. By adopting a mixed-methods approach with a longitudinal design, the study systematically examined the scientific interest in the BSC over time, as well as the dynamics of production, collaboration, and knowledge dissemination in this field.

One of the study's main strengths lies in the combination of content analysis and visual bibliometric techniques using tools such as VOSviewer. This enabled the identification not only of the volume of published research but also its quality, thematic structure, and academic interconnection. A sustained growth in scientific production related to the BSC has been evidenced for more than three decades, reflecting its consolidation as a widely recognized tool in various organizational contexts. The concentration of publications in certain journals, countries, and institutions reveals the existence of knowledge hubs that lead the theoretical and applied development of the BSC, especially from prestigious business schools and research centers.

From a structural perspective, the co-citation network analysis revealed three well-defined but interrelated clusters centered around the foundational contributions of Kaplan and Norton. This configuration shows that the BSC has evolved beyond being merely a managerial control tool, positioning itself as an integrative framework that combines financial and non-financial perspectives. It has adapted to diverse domains such as sustainability, intellectual capital, innovation, healthcare, and education. Its growing use in applied research reinforces its relevance in complex, dynamic, and highly regulated environments.

However, the indicators of concentration in citations and authorship also reveal the presence of typical dynamics of academic canonization, where a small group of authors dominates the field. While this may represent a validation of authority, it also raises concerns about epistemological diversity and the emergence of critical or alternative approaches. There is a need to promote greater openness to regional perspectives, heterodox approaches, and new theoretical currents that can enrich the debate.

The collaboration patterns identified show robust subnetworks of authors and institutions, but also areas with low connectivity. This asymmetry underscores the need to foster greater interconnectivity between scientific

communities to enhance interdisciplinary dialog. Additionally, the keyword co-occurrence analysis confirmed the BSC's priority thematic domains, consolidating it as a versatile theoretical platform capable of articulating diverse research agendas.

A key methodological contribution was the clear delimitation of the analyzed corpus, focusing exclusively on peer-reviewed articles indexed in Scopus. This strategy ensured a minimum quality standard, although it limited the inclusion of seminal texts and gray literature. In the future, this limitation could be addressed with mixed methodologies that combine quantitative rigor with qualitative depth.

In summary, the findings affirm that the BSC has become a central node in modern organizational thinking—not only as a technical tool but as a dynamic concept subject to constant reinterpretation.

## Conclusions

This study has demonstrated the relevance and potential of bibliometric analysis as a methodology to map the development, structure, and impact of knowledge on the Balanced Scorecard (BSC). Through a systematic review and advanced visualization techniques, it has been possible to identify patterns of production, collaboration, and academic influence, offering a comprehensive and updated overview of the field.

In general terms, the BSC continues to serve as a reference axis in strategic management research, with an expanding academic corpus and a highly specialized network of authors, institutions, and journals. The concentration of production and citations among certain actors highlights the established leadership of some schools of thought, while also opening opportunities to foster greater geographic, institutional, and epistemological diversity.

From a structural perspective, strong academic collaboration subnetworks were identified, although there are still areas with potential for greater integration and interconnection. These areas offer opportunities to strengthen editorial policies and international collaboration strategies that promote a more pluralistic, inclusive, and connected scientific ecosystem.


Thematically, the BSC has shown a remarkable capacity for expansion into new domains such as sustainability, health, education, and innovation. This evolution indicates that its utility is not limited to financial performance measurement but has become a flexible tool for addressing multidimensional challenges in complex and evolving contexts.


For future research, it is recommended to expand the scope of analysis to include other types of documents (books, theses, technical reports) and to conduct


comparative studies across regions and disciplines. It is also proposed to combine bibliometric analysis with qualitative approaches that explore the implementation experiences of the BSC, examining its cultural, sectoral, and organizational adaptation.

Finally, this study invites reflection on the need to link scientific production with real-world strategic management practices, to ensure that theoretical models such as the BSC continue evolving in dialog with the emerging needs of organizations and society.

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### Ethical Considerations

This study did not involve human participants, personal data, or interventions requiring ethical approval. Therefore, approval from an ethics committee was not necessary.

### Consent to Participate

Not applicable. This research is based exclusively on bibliometric data obtained from publicly available scientific databases (Scopus and Web of Science). No human subjects were involved.

### Funding

The authors received no financial support for the research, authorship, and/or publication of this article.

### Declaration of Conflicting Interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

### Data Availability Statement

Data sharing not applicable to this article as no datasets were generated or analyzed during the current study.

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