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Tracing the Trajectory of Accounting Information Research for Managerial Decision-Making: A Bibliometric and Science Mapping Analysis

Menelusuri Trajektori Riset Informasi Akuntansi untuk Pengambilan Keputusan Manajerial: Analisis Bibliometric dan Science Mapping

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ABSTRACT

This study examines the dominant themes and emerging trajectories of accounting information for managerial decision-making using bibliometric analysis and science mapping. The data were retrieved from the Scopus database, which covers 626 publications published between 2010 and 2025. Biblioshiny and VOSviewer were used to map publication trends, author productivity, country contributions, leading journals, and keyword co-occurrence patterns. The findings show a marked increase in research output after 2022, reaching 93 publications by 2025. The United States and China were the leading contributing countries, whereas Pamucar D was the most prolific author. The most prominent publication outlets were Expert Systems with Applications, Journal of Cleaner Production, and IEEE Access. Keyword analysis reveals a growing convergence among decision support systems, artificial intelligence, and management accounting tools, indicating a shift toward data-driven and technology-enabled managerial decision-making. These findings provide a structured overview of the thematic evolution of the field and future research directions.

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INTRODUCTION

Accounting information is integral to the managerial decision-making process, as it offers a rational foundation for managers to comprehend the organization's status, evaluate performance, manage resources, and select the most suitable course of action (Bennett & Loose, 2024; Livera et al., 2022). In contemporary organizations, managerial decisions cannot rely solely on intuition or experience; they must be substantiated by accounting data that are relevant, measurable, and accountable (Anggraini et al., 2021). Accounting functions as an analytical language that aids managers in interpreting an organization's trajectory through insights into costs, revenues, budgets, financial statements, financial ratios, and performance indicators. Consequently, accounting serves not merely as a recording and reporting activity but also as a strategic tool supporting planning, control, evaluation, and decision-making (Duan et al., 2021; Sinaga & Maulana, 2022).

The significance of accounting information is further emphasized when it is associated with management accounting, budgeting, financial analysis, performance evaluation, and decision-support systems. Management accounting provides the internal information necessary for formulating both operational and strategic decisions, whereas budgeting acts as a mechanism for planning and controlling resources. Financial analysis, including financial ratio analysis, assists managers in evaluating organizational health and linking financial data to a company's strategic position. Performance evaluation was employed to assess business unit achievements, identify variances, and propose recommendations for improvement. Decision support systems enhance the function of accounting information by enabling data to be processed, modeled, and visualized, thereby facilitating faster, more accurate, and evidence-based decisions (Hosseinizadeh Mazloumi et al., 2023; Jaiswal & Thaker, 2024).

In the contemporary business landscape, characterized by increasing complexity and technological advancement, the utilization of accounting information by organizations has undergone significant transformation. Traditionally, managerial decisions have been based on periodic financial statements, static budgets, and manual interpretation. However, decision-making processes are now increasingly reliant on data-driven systems, business intelligence, machine learning, artificial intelligence, and performance evaluation algorithms (Cavicchi et al., 2022; Ma et al., 2022). This evolution has rendered accounting information not merely historical but also predictive, diagnostic, and prescriptive. Accounting data are now employed to discern performance patterns, forecast risks, assess decision alternatives, and formulate organizational strategies in a more adaptive manner. Within this context, the primary value of accounting information resides not in the numerical data reported, but in its ability to generate pertinent managerial insights.

Despite ongoing research on accounting information, management accounting, budgeting, financial analysis, performance evaluation, and decision support systems, the literature in this domain remains fragmented across diverse research streams that are yet to achieve full integration. Some studies concentrate on management accounting practices, while others focus on management control, performance measurement, decision support systems, and the role of digital technology in decision-making processes (Arkhipova et al., 2024; Bui et al., 2022; Jia et al., 2022). Consequently, the development of knowledge concerning the relationship between accounting information and managerial decision-making has not been comprehensively elucidated. Bibliometric analysis and science mapping are essential for identifying publishing trends, major contributors, influential journals,

dominant countries and institutions, patterns of collaboration, keyword structures, thematic clusters, and future research directions(Zhang et al., 2022).

Building on this foundation, this study examines the research trajectory of accounting information utilized in managerial decision-making through a bibliometric analysis and science mapping of 626 documents indexed in Scopus from 2010 to 2025. This investigation aimed to address the following five research questions. RQ1: What are the characteristics of publications concerning accounting information for managerial decision-making categorized by year of publication, document type, source, and country of origin? RQ2: Who authors, journals, countries, institutions, and documents have made the most substantial contributions to this field? RQ3: What is the structure of international collaboration networks in research related to accounting information for managerial decision-making? RQ4: What keyword clusters and thematic structures characterize research in this domain? RQ5: What emerging themes and future research directions can be discerned through bibliometric analysis and science mapping?

RESEARCH METHODS

This study employs bibliometric analysis and science mapping to examine the progression of research on accounting information for managerial decision making. The bibliometric approach was selected because of its capacity to systematically identify patterns in scholarly publications, encompassing annual trends, publication sources, authors, countries, institutions, influential documents, and the evolution of keywords (Choudhri et al., 2015; Dewi et al., 2021; Grzybek et al., 2025; Khan et al., 2022). The research methodology was organized into six primary stages (Figure 1): research design, determination of data sources and search strategy, document screening, data cleaning, analysis and visualization, and interpretation and reporting.

Research Design

The research design aimed to map the research trajectory through performance analysis and science mapping. A performance analysis identified publication characteristics, author productivity, journal sources, country contributions, institutions, and the most highly cited documents. Science mapping investigates the relationships between units of analysis, including author collaboration, country linkages, organizational networks, and relationships among keywords.

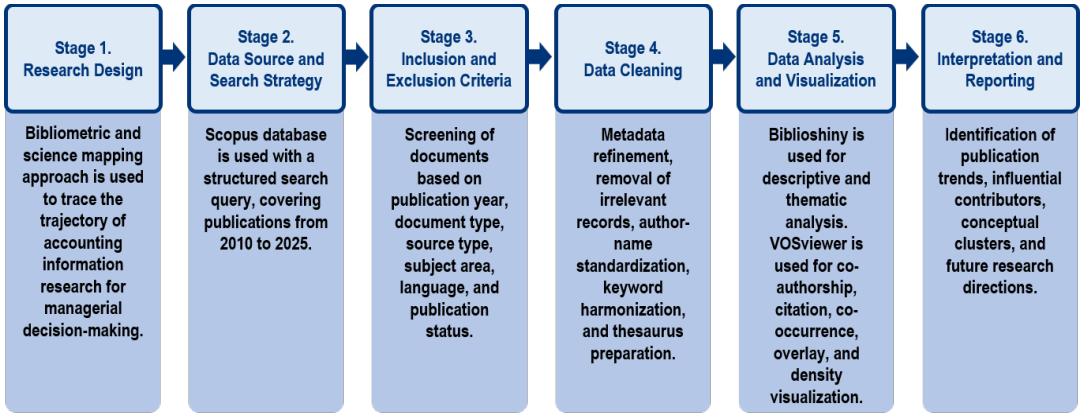

Figure 1. Research framework

Data Source and Search Strategy

Data were sourced from the Scopus database owing to its provision of comprehensive publication metadata, which is suitable for bibliometric analysis. These metadata included author names, article titles, publication year, journal name, affiliation, country, abstracts, keywords, citations, and references. The search strategy was developed by integrating core accounting terms (such as accounting information, management accounting, budgeting, financial analysis, performance evaluation, and management control) with decision-making terms (including managerial decision-making and decision support systems). The search query employed was as follows: TITLE-ABS-KEY (("accounting information" OR "management accounting" OR "managerial accounting" OR "cost accounting" OR "cost information" OR "budgeting" OR "budgetary control" OR "capital budgeting" OR "cost-volume-profit" OR "break-even analysis" OR "financial ratio analysis" OR "performance measurement" OR "performance evaluation" OR "management control" OR "management control systems") AND ("managerial decision making" OR "managerial decision-making" OR "strategic decision making" OR "strategic decision-making" OR "accounting decision making" OR "accounting decision-making" OR "accounting for decision making" OR "decision support system" OR "decision support systems")).

The initial search resulted in the identification of 2,560 documents. Subsequently, all documents were screened according to criteria including year range, document type, source type, language, discipline, and publication status. The publication period was restricted to 2010–2025 to encompass contemporary developments in this field, particularly as the utilization of data, decision support systems, and analytics technology began to gain prominence in managerial decision-making practices.

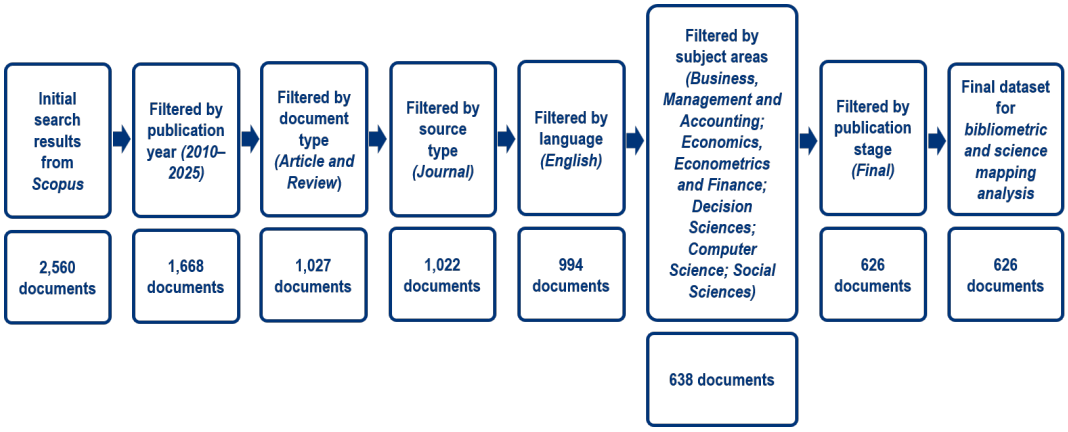

Figure 2. Document screening process

Inclusion and Exclusion Criteria

The document screening process was conducted in multiple stages to ensure alignment of the analyzed data with the research focus. Initially, 2,560 documents were identified from the search results. Application of the 2010–2025 year filter reduced this number to 1,668 documents. Subsequent filtering by document type, specifically articles and reviews, resulted in 1,027 documents. Further restriction to the journal source type yielded 1,022 documents. Limiting the selection to English documents resulted in 994 documents. Filtering by subject area, including Business, Management, and Accounting; Economics, Econometrics, and Finance; Decision Sciences; Computer Science; and

Social Sciences, produced 638 documents. After retaining only publications with the final status, the final dataset comprised 626 documents. The inclusion and exclusion criteria are presented in Table 1.

Table 1. Inclusion and exclusion criteria

Screening criterion	Inclusion criteria	Exclusion criteria
Database	Scopus-indexed documents	Documents outside Scopus
Publication year	Publications from 2010 to 2025	Publications before 2010 and after 2025
Document type	Articles and reviews	Conference papers, book chapters, editorials, notes, letters, and other document types
Source type	Journals	Conference proceedings, book series, books, and trade publications
Language	English	Non-English publications
Subject area	Business, Management and Accounting; Economics, Econometrics and Finance; Decision Sciences; Computer Science; Social Sciences	Subject areas outside the selected fields
Publication stage	Final publications	Articles in press or non-final publications

Data Cleaning and Analysis Procedure

The data retrieved from Scopus were exported in CSV format, encompassing metadata related to citations, bibliographic details, abstracts, keywords, affiliations, and references. The data-cleaning phase is designed to mitigate bias and prevent the fragmentation of terms that share identical meanings. In this study, data cleaning involved assessing the consistency of author names, affiliations, countries, and keywords. The process of keyword cleaning entailed consolidating variations in terminology, such as "decision-making" and "decision making," "management control system" and "management control systems," along with other terms with analogous meanings. This procedure also included the elimination of generic terms that lacked substantial conceptual value in mapping. A thesaurus file was constructed and utilized in VOSviewer to ensure a more refined visualization of keywords and to prevent excessive label fragmentation.

Data analysis was conducted using Biblioshiny and VOSviewer software (Harymawan et al., 2025; van Eck & Waltman, 2010). Biblioshiny facilitates descriptive bibliometric analyses including annual scientific production, identification of the most relevant publication sources, prolific authors, active affiliations, productive countries, cited documents, thematic mapping, and thematic evolution. VOSviewer maps the interrelationships among analysis units through co-authorship, citation, and co-occurrence analyses, as well as network, overlay, and density visualization. Co-authorship analysis investigates collaboration patterns among authors, organizations, and countries; co-occurrence analysis identifies keywords that frequently appear together; and citation analysis highlights influential

documents, authors, journals, and countries. The visualization outcomes were interpreted to address the five research questions.

RESULTS AND DISCUSSION

Publication Characteristics (RQ1)

Figure 3A shows the development of the number of publications on accounting information for managerial decision-making during 2010–2025. In general, the number of publications fluctuated between 2010 and 2021, but increased sharply after 2022 and reached a peak in 2025 with 93 documents. This pattern indicates growing academic attention on this topic in recent years, especially in line with the increasing need for accounting information in performance evaluation, decision support systems, and data-driven managerial decision making (Arkhipova et al., 2024; Fu, 2021; Jaiswal & Thaker, 2024; Ma et al., 2022)).

Figure 3B shows the composition of the document types. Publications were dominated by journal articles (95.2 %), while review articles accounted for only 4.8%. This composition shows that studies in this field have developed more through primary research than through literature reviews. The low proportion of reviews also opens up opportunities for more comprehensive mapping and synthesis studies, a position occupied by this research.

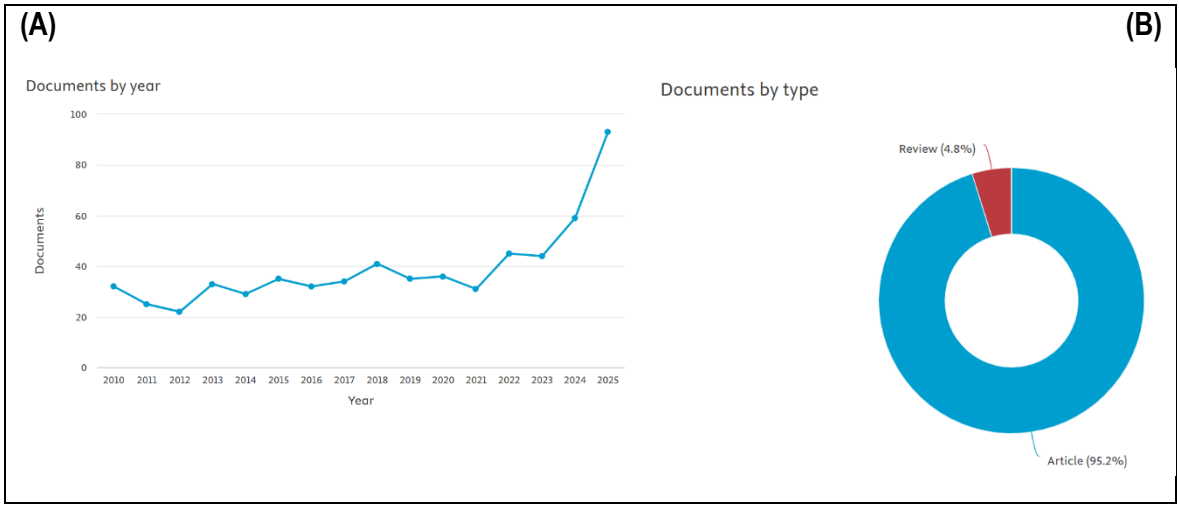

Figure 3. Analysis of Publication Characteristics. (A) Annual Number of Publications. (B) Distribution of Publications by Document Type.

Table 2 presents the countries with the highest contributions to publication output. The United States ranks first with 80 documents, followed by China (79), India (57), and the United Kingdom (51). This pattern suggests that knowledge production in this field is predominantly driven by countries with established research traditions in accounting, management, information systems, and decision sciences. The inclusion of Germany, Italy, Australia, Taiwan, Canada, and Turkey in the top ten list indicates that this topic is developing across a broad geographic spectrum.

Table 2. Top contributing countries based on number of documents

Rank	Country	Documents
1	United States	80
2	China	79
3	India	57
4	United Kingdom	51
5	Germany	38
6	Italy	34
7	Australia	30
8	Taiwan	29
9	Canada	28
10	Turkey	27

Table 3 presents the most pertinent publication sources. Expert Systems with Applications, IEEE Access, and Journal of Cleaner Production each contributed 14 articles, representing the top three sources. These findings suggest that research on accounting information for managerial decision-making is published not only in accounting journals but also in interdisciplinary journals related to expert systems, applied computing, sustainability, decision support systems, productivity, and performance evaluation. Consequently, the characteristics of these publications indicate that this field is evolving as an interdisciplinary study that integrates accounting information, decision-making, and analytic technology.

Table 3. Most relevant sources based on number of articles

Rank	Source	Articles
1	Expert Systems with Applications	14
2	IEEE Access	14
3	Journal of Cleaner Production	14
4	International Journal of Production Research	12
5	Sustainability (Switzerland)	9
6	Decision Support Systems	7
7	European Journal of Operational Research	7
8	International Journal of Productivity and Performance Management	7
9	Computers and Industrial Engineering	6
10	Journal of Biomedical Informatics	6

Productive and Influential Contributors (RQ2)

Table 4 delineates the ten most prolific authors in the field. Pamucar D ranks foremost with eight publications, followed by Sahu AK with six. Lauras M, Lee S, and Wang D have each contributed five articles, while Chen C, Gourc D, Gupta A, Li Y, and Pintelon L have each authored four. This distribution suggests that the field is characterized by a diverse array of contributors rather than being dominated by a single author. Notably, many individuals on this list are linked to decision-making models, performance evaluations, management systems, and analytical methodologies, thereby underscoring the interdisciplinary nature of this domain (Anggraini et al., 2021; Chalmeta & Ferrer Estevez, 2023; Gama & Bonamigo, 2023; Hosseinizadeh Mazloumi et al., 2023).

Table 4. Top 10 most productive authors

Rank	Author	Articles	Articles Fractionalized
1	Pamucar D	8	1.72
2	Sahu AK	6	1.35
3	Lauras M	5	1.37
4	Lee S	5	1.45
5	Wang D	5	1.33
6	Chen C	4	0.98
7	Gourc D	4	1.12
8	Gupta A	4	1.07
9	Li Y	4	0.85
10	Pintelon L	4	1.33

Table 5 presents the sources of publications with the highest local impact. According to the h-index, the Journal of Cleaner Production ranks first, with a score of 14 and 1,151 citations, followed by the International Journal of Production Research, which has an h-index of 12 and 758 citations. However, in terms of total citations, Expert Systems with Applications exert the greatest influence, with 1,474 citations, despite its h-index of 11. This pattern suggests that the most influential sources in this field are interdisciplinary. The inclusion of Expert Systems with Applications, IEEE Access, Decision Support Systems, and Computers and Industrial Engineering underscores the strong relationship between accounting information, decision support systems, and analytical approaches. Meanwhile, the Journal of Cleaner Production, Sustainability (Switzerland) and the International Journal of Productivity and Performance Management illustrate that accounting information is extensively utilized in the contexts of sustainability, productivity, and performance evaluation.

Table 5. Top 10 sources with the highest local impact

Rank	Source	h-index	g-index	m-index	TC
1	Journal of Cleaner Production	14	14	1.000	1151
2	International Journal of Production Research	12	12	0.706	758
3	Expert Systems with Applications	11	14	0.647	1474
4	IEEE Access	8	14	1.000	385
5	Decision Support Systems	7	7	0.412	307
6	Sustainability (Switzerland)	7	9	0.636	135
7	International Journal of Productivity and Performance Management	6	7	0.353	127
8	Journal of Biomedical Informatics	6	6	0.353	131
9	Benchmarking	5	5	0.357	226
10	Computers and Industrial Engineering	5	6	0.294	176

Table 6 delineates the ten most pertinent affiliations. The University of Belgrade occupies the foremost position with 11 articles, followed by Islamic Azad University with 10 articles, and the National Institute of Technology with 7 articles. The distribution of these institutions illustrates a wide geographical dispersion encompassing Eastern Europe, South Asia, East Asia, and South America, thereby underscoring the global scope of this field.

Table 6. Top 10 most relevant affiliations

Rank	Affiliation	Articles
1	University of Belgrade	11
2	Islamic Azad University	10
3	National Institute of Technology	7
4	Chitkara University	6
5	University of Tehran	6
6	Université de Toulouse	6
7	Yuan Ze University	6
8	Federal Univ. of Santa Catarina	5
9	King Saud University	5
10	University of Ferrara	5

Table 7 presents the documents with the highest global citation counts. The article by Ahvenniemi et al. (2017) published in the journal Cities ranks first, with 1,156 citations, and exhibits the highest total citations (TC) per year at 115.60, along with a normalized TC of 19.40. The subsequent positions were held by Sun (2010) in Expert Systems with Applications, with 713 citations, and Haq et al. (2018) in Mobile Information Systems, with 575 citations. The substantial citation counts for these documents suggest that this field is influenced not only by accounting literature but also by research in information systems, decision support, smart systems, performance evaluation, and analytical models. These findings underscore the interdisciplinary nature of accounting information research for managerial decision-making, linking accounting with technology, performance evaluation, and data-driven decision-making.

Table 7. Top 10 most globally cited documents

Rank	Paper	Total Citations	TC per Year	Normalized TC
1	Ahvenniemi H, 2017, *Cities*	1156	115.60	19.40
2	Sun C-C, 2010, *Expert Systems with Applications*	713	41.94	11.26
3	Haq AU, 2018, *Mobile Information Systems*	575	63.89	13.52
4	Fountas S, 2015, *Computers and Electronics in Agriculture*	321	26.75	6.02
5	Moons K, 2019, *Omega*	225	28.13	6.90
6	Liu X, 2016, *IEEE Journal of Biomedical and Health Informatics*	223	20.27	4.65
7	Khajeh-Hosseini A, 2012, *Software: Practice and Experience*	205	13.67	5.17
8	Taticchi P, 2015, *International Journal of Production Research*	203	16.92	3.81
9	Vikhorev K, 2013, *Journal of Cleaner Production*	182	13.00	5.48
10	Van Horenbeek A, 2014, *Omega*	182	14.00	5.15

Table 8 delineates the ten countries with the highest total citation counts. China ranked first with 2,940 citations, followed by the United Kingdom with 1,645 citations, and Finland with 1,277 citations. Notably, although the United States is identified as the most prolific in terms of publication output

(RQ1), its citation count is surpassed by those of China, the United Kingdom, and Finland. This observation suggests that there is not always a direct correlation between publication productivity and citation impact. Finland presents a particularly noteworthy case, as it boasts the highest average citations per article (425.70), demonstrating that a limited number of publications can exert substantial scientific influence if they achieve widespread citations.

Table 8. Top 10 most cited countries

Rank	Country	Total Citations	Average Article Citations
1	China	2940	38.70
2	United Kingdom	1645	56.70
3	Finland	1277	425.70
4	USA	991	27.50
5	Belgium	755	83.90
6	Brazil	560	31.10
7	India	556	13.90
8	France	488	30.50
9	Germany	440	22.00
10	Canada	436	31.10

International Collaboration Network (RQ3)

Figure 4 illustrates the network of international co-authorship. The visualization reveals that international collaboration is structured through several clusters of interconnected countries. The United States has emerged as a principal node within the network, as evidenced by its substantial node size and extensive connections with other countries. This position indicates that the United States not only makes a significant contribution in terms of publication volume but also functions as a crucial connector within the international research collaboration network.

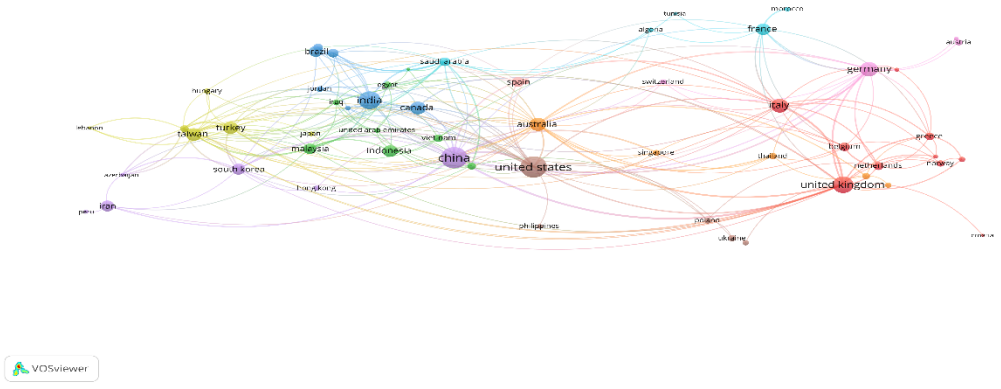

Figure 4. International collaboration network based on country co-authorship analysis

Several countries play significant roles within the collaborative framework, including China, India, the United Kingdom, Germany, Italy, Australia, Turkey, and Taiwan. China is centrally positioned within this network, establishing connections with various Asian and non-Asian nations. The United Kingdom, Germany, and Italy demonstrate robust collaborative patterns within the European context. Concurrently, the involvement of Australia, India, Indonesia, Malaysia, Saudi Arabia, and other Asian

countries suggests that this research advances through cross-regional interactions rather than being confined to a single geographic area.

The network map revealed extensive, albeit uneven, collaboration. Nations with large nodes and numerous connecting lines function as hubs of collaboration, whereas those with smaller nodes on the network periphery exhibit more limited engagement. This pattern highlights that research on accounting information for managerial decision-making has evolved into an international academic agenda, as evidenced by bibliometric studies that chart cross-country contributions, thematic evolution, and networks of co-authorship and collaboration. Bibliometric evidence further indicates that the dynamics of knowledge are influenced not only by a country's publication volume but also by its position within the collaboration network (e.g., as a "hub" linking clusters of countries), which subsequently affects the dissemination of ideas, the formation of thematic clusters, and citation visibility. Consequently, the ability to foster cross-country scientific collaboration emerges as a crucial mechanism that accelerates knowledge accumulation and integration of perspectives (e.g., accounting, information systems, and digital analytics) in decision-making research (Arkhipova et al., 2024).

Keyword Clusters, Evolution, and Research Focus (RQ4)

Figure 5A illustrates the keyword co-occurrence network, which maps the interrelationships among various topics. The visualization revealed three primary thematic clusters. The blue cluster is centered on topics pertinent to decision support systems, including decision support systems, performance evaluation, and data analysis, suggesting a significant reliance of managerial decisions on data-driven systems. The red cluster emphasizes traditional management accounting tools, such as budget control, cost accounting, and performance measurement. The green cluster is indicative of data-driven decision-making, with machine learning, big data, and artificial intelligence emerging as the predominant topics. The interconnectedness between the management accounting cluster and the decision support systems cluster signifies the integration of modern technology with traditional managerial techniques to facilitate more effective and efficient decision-making (Chalmeta & Ferrer Estevez, 2023; Fu, 2021; Shao et al., 2025). Figure 5B provides an overlay visualization depicting the evolution of the keywords over time. More recent keywords, such as machine learning, artificial intelligence, and big data, are highlighted in bright (greenish) colors, signifying their increasing prominence in managerial decision-making research and reflecting a paradigm shift towards data-driven decisions. In contrast, more traditional keywords, such as cost accounting and performance measurement, are marked in darker colors, indicating their continued importance but more extensive research in earlier periods.

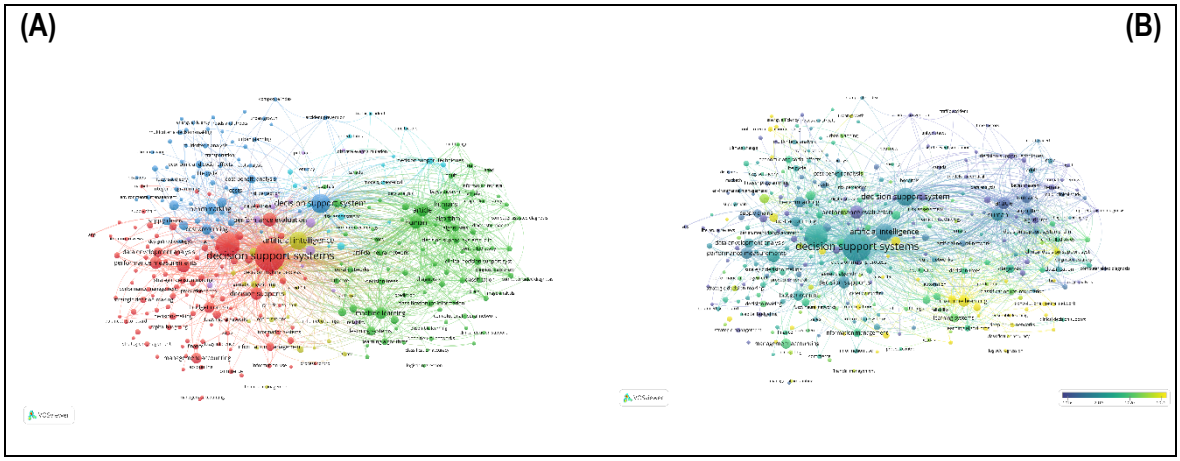

Figure 5. Analysis of keyword co-occurrence. (A) Network map of keyword co-occurrence. (B) Overlay visualization of keyword clusters over time.

Figure 6 illustrates a density visualization highlighting the areas with the highest concentration of frequently occurring keywords. The brightly colored regions encompass keywords such as decision support systems, performance evaluation, and managerial accounting, indicating significant research intensity in these domains. Conversely, the dimmer areas, featuring themes like data envelopment analysis and fuzzy logic, suggest topics that, while relevant, have not been explored as extensively as the primary themes.

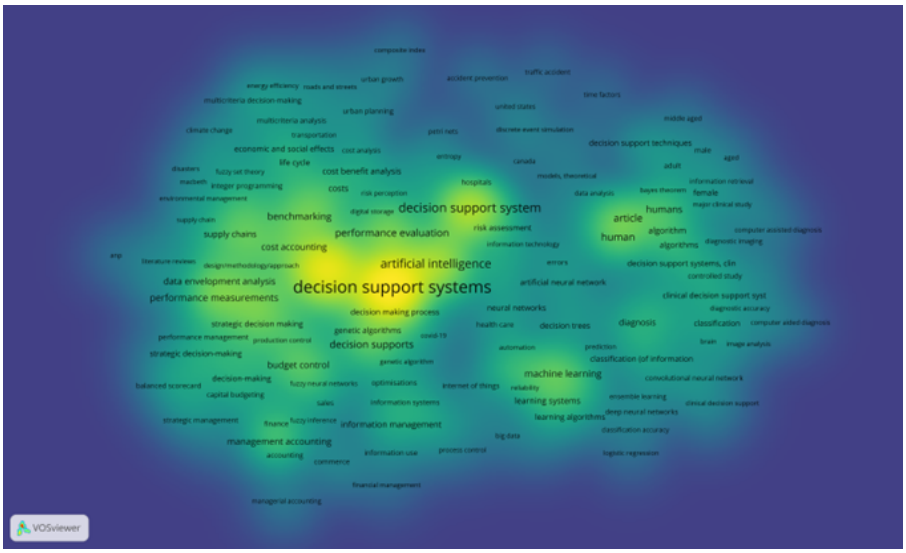

Figure 6. The density visualization map of accounting information for managerial decision-making research.

Emerging Themes and Future Research Directions (RQ5)

Clustering by Documents Coupling

Figure 7 presents the results of clustering through document coupling, which identifies thematic groups based on the similarity of references between documents. The map highlights centrality and impact: Themes positioned on the right and upper sides indicate strong connections with other research and a significant impact in this field.

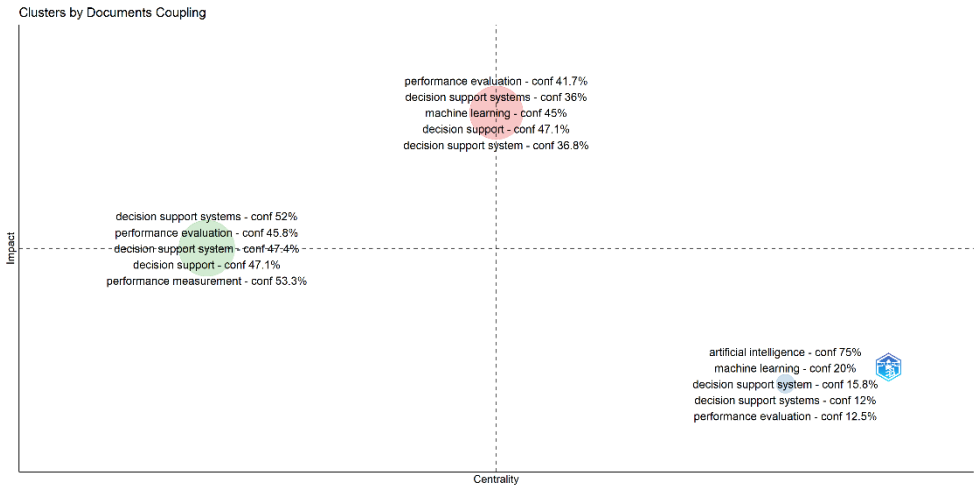

Figure 7. Clustering by documents coupling

The main clusters identified were decision support systems (52% confidence), performance evaluation (45.8% confidence), decision support (47.4% confidence), performance measurement (53.3% confidence), and machine learning (45% confidence). These clusters show that the integration of performance evaluation and decision support systems has a significant impact on research within this field. Moving forward, research will continue to focus on how accounting information supports performance evaluation and system-based decision-making.

Meanwhile, artificial intelligence (75% confidence) and machine learning (20% confidence) clusters mark the direction of emerging research, although they currently have a smaller impact. The use of artificial intelligence (AI) in decision support systems is expected to become increasingly important, paving the way for advanced technology-based research. This analysis indicates that the future direction of research in the field of accounting information for managerial decision-making will concentrate on three major themes.

First, the development of increasingly digital and integrated decision support systems (DSS), such as data-based DSS, enables faster and more structured modeling and decision recommendations compared to manual approaches and can be extended to support managerial contexts through system architectures that combine analytics and control modules (Huang & Wang, 2025; Zhou, 2024). Second, the application of machine learning (ML) and artificial intelligence (AI) as prediction/classification engines in DSS is becoming more dominant, both to improve recommendation accuracy and automate the evaluation of decision alternatives(Alshboul et al., 2021; Jia et al., 2022). Third, the focus on more precise performance measurement is strengthening, along with the use of big data and evaluation techniques that reduce subjectivity, increase the objectivity of performance information, and improve the quality of decision support (Fu, 2021). The design of evaluation systems (e.g., disaggregated measures) can also influence the accuracy and fairness of assessments compared to holistic evaluations (Chan & Thornock, 2022).

Conceptual Structure

Figure 8 presents a co-occurrence network illustrating a dense and interconnected structure in which the terms decision support systems, decision making, and artificial intelligence form the main core of the network. DSS is closely linked with decision-making, indicating that the primary focus of research is on technology-supported decision-making processes. Artificial intelligence enhances the

analytical and predictive capabilities of DSS, enabling more accurate and efficient decision-making (Cheng et al., 2025; Fu, 2021; Gunawan et al., 2026; Huang & Wang, 2025).

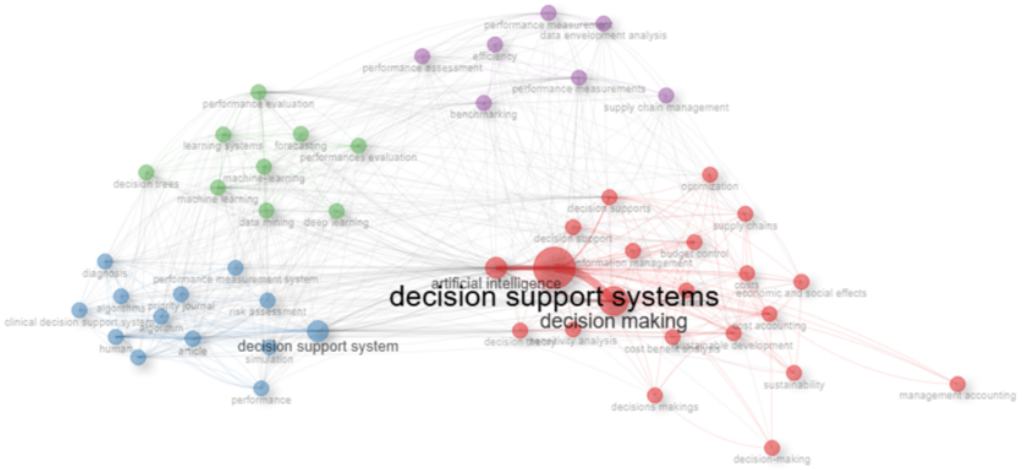

Figure 8. Co-occurrence Network of the Conceptual Structure

The network structure delineated four thematic communities, each distinguished by distinct colors. The red community emphasizes the practical applications and economic implications of decision support systems (DSS), incorporating terms such as optimization, supply chains, cost accounting, economic effects, and sustainability. This community explores the utilization of DSS to optimize business processes, manage supply chains, and evaluate the economic and social impacts of organizational decisions. The green community highlights analytical methodologies for performance evaluation and data analysis, featuring terms such as machine learning, data mining, forecasting, and performance evaluation. The blue community, located in the lower left, concentrates on domain-specific DSS applications, with terms such as clinical decision support system, diagnosis, and risk assessment, indicating connections to high-risk sectors, such as healthcare and industry. The purple community at the top is associated with advanced performance measurement and efficiency analysis through techniques such as data envelopment analysis (DEA) and benchmarking, primarily in supply chain management and performance evaluation.

Consequently, the co-occurrence network illustrates the diversity of DSS implementation and evaluation, encompassing technology-based decision-making, data and performance analytics, domain-specific applications, and efficiency and performance evaluation. The integration of AI/ML in DSS serves as a pivotal driver, facilitating more accurate predictions, expedited decision recommendations, and data-driven optimization in managerial and financial contexts (Arkhipova et al., 2024; Cavicchi et al., 2022). Concurrently, DSS research is advancing towards sustainability through business intelligence tools for sustainability management and decision-making that consider non-financial dimensions, indicating that AI-based DSS not only supports decisions but also enhances efficiency and sustainability agendas across various contexts (Chalmeta & Ferrer Estevez, 2023).

Thematic Evolution

Figure 9 illustrates the evolution of the principal themes from 2010 to 2025. From 2010 to 2012, decision support systems (DSS) were predominant, while management accounting and performance measurement began to gain prominence. In the subsequent period of 2013 to 2015, artificial intelligence (AI) developed in conjunction with DSS, and cost accounting garnered attention. The years

2016–2018 witnessed the expansion of DSS into sustainable development and manufacturing, with budget controls becoming increasingly significant. From 2019 to 2021, DSS maintained its dominance; however, decision-making and cost-benefit analysis became more pronounced, alongside a heightened focus on climate change. From 2022 to 2025, artificial intelligence, particularly machine learning and deep learning, has emerged as the dominant research area, with DSS becoming progressively integrated with these technologies. Sensitivity analysis and climate change persist as major focal points, indicating a shift towards the application of technology in addressing social and environmental challenges.

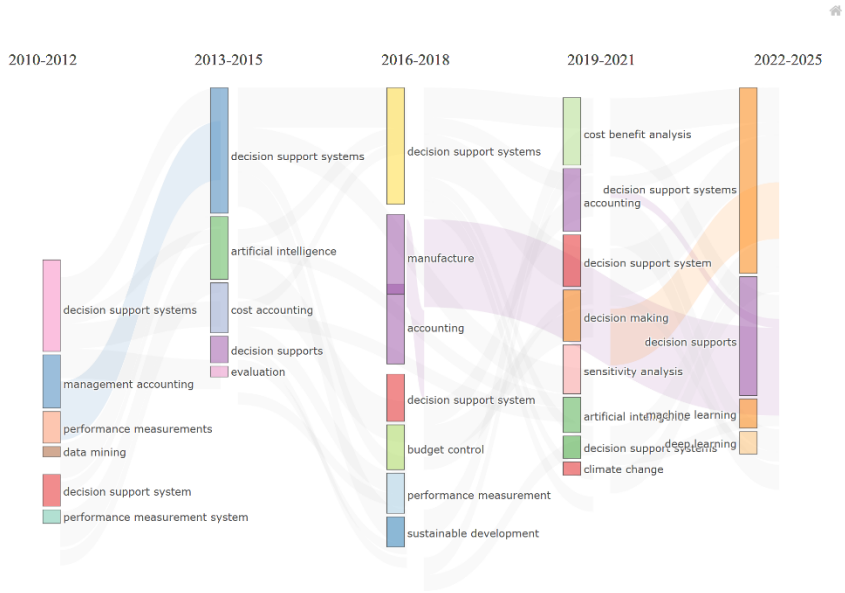

Figure 9. Thematic Evolution of the Conceptual Structure

The integration of artificial intelligence (AI) into decision support systems (DSS) represents a pivotal advancement with substantial implications for future research. This integration facilitates the development of more sophisticated and automated systems aimed at enhancing decision-making efficiency. The emphasis on climate change and sustainable development suggests a research trajectory that merges technological innovation with solutions to global challenges. Future research should prioritize the creation of a sustainability-oriented DSS that incorporates multi-criteria evaluation, address trade-offs across economic, social, and environmental pillars, and consider policy and operational dynamics (Duan et al., 2021; Francis & Thomas, 2022). This includes the integration of business intelligence, which explicitly considers environmental, social, governance (ESG), and ethical dimensions (Swalih et al., 2024). Concurrently, the exploration of AI and machine learning (ML) within DSS should be expanded across various sectors and public policy domains to enhance the prediction, optimization, and quality of decision recommendations (Francis & Thomas, 2022; Ma et al., 2022). This underscores the necessity for interdisciplinary research that combines technological advancements with social and environmental considerations.

This study makes three significant contributions to the management accounting literature. First, the mapping results reveal that research on accounting information for managerial decision-making is inherently cross-disciplinary, transcending the traditional confines of the accounting discipline (Arkhipova et al., 2024; Bui et al., 2022; Jaiswal & Thaker, 2024). Second, the identification of a

paradigm shift from conventional accounting tools to data-driven systems, machine learning, and artificial intelligence broadens the conceptual framework for comprehending the production, processing, and utilization of accounting information in decision-making (Huang & Wang, 2025; Zhou, 2024). Third, the integration of five dimensions—management accounting, budgeting, financial analysis, performance evaluation, and decision support systems—into a unified mapping framework establishes a foundation for more cohesive theory development regarding accounting information as the knowledge base for organizational decisions(Franke & Hiebl, 2023; Ma et al., 2022).

CONCLUSION

This study examines the research trajectory concerning accounting information for managerial decision-making through a bibliometric analysis and science mapping of 626 documents indexed by Scopus and published between 2010 and 2025. Five research questions were systematically addressed, providing a comprehensive overview of the field's development, encompassing publication characteristics, key contributors, collaboration networks, thematic structure, and emerging research directions. The findings reveal significant growth in publications, particularly post-2022, culminating in 93 documents by 2025. The United States and China have emerged as the most prolific countries, whereas Expert Systems with Applications, Journal of Cleaner Production, and IEEE Access are the most frequently featured publication sources. Pamucar D was identified as the most productive author. Notably, Finland recorded the highest average citations per article at 425.70, indicating that citation impact does not always correlate with publication volume.

Three major thematic clusters delineate the structure of this field: (1) decision support systems and data-driven decision-making; (2) traditional management accounting tools, including budgeting, cost accounting, and performance measurement; and (3) new technologies, such as machine learning, artificial intelligence, and big data. Thematic evolution analysis revealed a consistent paradigm shift from conventional accounting-based decision-making to technologically integrated approaches, most notably demonstrated by the dominance of artificial intelligence and machine learning research after 2022. International collaboration analysis indicates that the United States serves as the primary network hub, with extensive cross-regional connections involving Europe, Asia, and Oceania. These collaboration networks are broad but unevenly distributed, with peripheral countries playing a limited role. Enhancing participation from emerging research economies is an important future direction.

This study had several limitations. First, the data were sourced solely from Scopus, excluding publications indexed in other databases such as Web of Science, Dimensions, or Google Scholar. Second, the search queries were limited to English-language terms, potentially overlooking relevant publications in other languages. Third, the 2010–2025 period was selected to capture contemporary developments but disregards the historical roots of research prior to 2010. Fourth, bibliometric analysis focuses on quantitative patterns in metadata and does not evaluate the substantive depth of each publication. Fifth, restricting the document types to articles and reviews and the source type to journals excludes contributions from conference proceedings, which play a significant role in some subdisciplines of computer and decision sciences.

Based on these findings, three strategic directions are recommended for future research: (1) development of adaptive decision support systems responsive to environmental and social challenges; (2) deeper integration of artificial intelligence and machine learning within the framework of management accounting and performance evaluation; and (3) development of interdisciplinary

research connecting accounting information systems with sustainability, ethics, and public policy. These directions reflect the maturation of the field toward engagement with broader societal demands, where accounting information serves not only as a managerial tool but also as a foundation for more responsible and sustainable organizational decision-making.

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