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Mapping and Forecasting Digital Accounting Research: A Hybrid Bibliometric and AI-Assisted Text-Mining Approach

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Abstract: *This study examines the structured overview of the digital accounting field using a hybrid bibliometric and AI-assisted text-mining approach. The study analyzes 616 documents from the Scopus database to map the evolution, structure, and key themes of digital research. To analyze using Publish or Perish, VOSviewer, KH Coder, and Google Sheets AI functions. Bibliometric mapping reveals sustained growth in digital accounting publications and increasing thematic concentration around artificial intelligence, blockchain, cloud accounting, and data analytics. Citation analyses identify a core set of influential journals, authors, and institutions modeling the accounting area. Semantic and co-word analyses indicate that research predominantly focuses on technology adoption, implementation challenges, auditing transformation, and performance implications, with emerging attention to sustainability reporting and advanced analytics. At the same time, the results highlight fragmentation in theoretical application and limited methodological diversity. By integrating network-based and semantic analyses, this study provides a structured overview of dominant research patterns and identifies underexplored areas that warrant further investigation.*

Keywords: Digital Accounting; AI-Assisted Bibliometric; Text-Mining

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1. Introduction

Advanced digital technologies are profoundly reshaping the accounting profession, transforming not only operational processes but also the knowledge foundations of financial information systems and professional practice (KANO, 2024). The rapid adoption of artificial intelligence (AI), blockchain, big data analytics, robotic process automation (RPA), cloud computing, and machine learning accelerates this shift, creating both opportunities and challenges for accountants, auditors, and enterprises (Qiaoling Fang, 2023). These innovations have progressed from simple automation tools to strategic enablers that redefine how accounting information is produced, validated, communicated, and used for decision-making (Vasarhelyi et al., 2015). In the context of Industry 4.0, digital accounting has become essential for organizational competitiveness, enabling real-time reporting, predictive analytics, continuous auditing, and enhanced financial transparency (Chur & Angeline Yap, 2024).

This transformation extends beyond technology implementation to reshape professional roles, regulatory expectations, and the theoretical foundations of accounting research. Blockchain provides secure audit trails, AI enhances fraud detection and intelligent automation, cloud systems improve collaboration, and big data enables continuous, multidimensional

performance monitoring. Together, these innovations signal a shift from retrospective recordkeeping to forward-looking, strategic financial information management (Firmansyah. & Dermawan, 2023; Sonjaya, 2024; Spilnyk et al., 2020).

Research on digital accounting has expanded rapidly, especially after 2017, with notable surges during and after the COVID-19 pandemic. Scholars have examined technology adoption in education (Amin et al., 2024), organizational implementation challenges (Prijanto, 2024), auditing transformation (Aljawarneh et al., 2023), cybersecurity concerns (Yoon et al., 2015), and digital sustainability reporting (Darmawati et al., 2025). Despite this growth, major gaps remain in understanding the field's intellectual structure, theoretical development, methodological diversity, and future research pathways. Existing bibliometric studies often rely on narrow methods primarily citation analysis or keyword mapping without integrating semantic content analysis or theoretical categorization, limiting their ability to explain conceptual evolution or forecast emerging directions. They also lack contextual interpretation of geographic, institutional, and linguistic influences on research production (Mukherjee et al., 2022; Zhou et al., 2024). Tools such as VOSviewer, KH Coder, and AI-based categorization provide complementary insights, yet no study has systematically combined them to reveal both the structural and semantic dimensions of digital accounting research (Chen et al., 2024; Mukherjee et al., 2022).

To address these gaps, this study adopts a hybrid bibliometric semantic framework integrating Publish or Perish, VOSviewer, KH Coder, and Google Sheets AI functions. This multi-method approach enables the mapping of the intellectual structure of digital accounting, identification of dominant theories and methods, exploration of semantic relationships among research themes, and forecasting of emerging directions. Methodologically, the study demonstrates the value of combining quantitative and semantic techniques; theoretically, it highlights the need for integrative frameworks capturing human, organizational, and technological factors; and practically, it supports researchers, educators, and practitioners in navigating digital transformation. Therefore, this study is answered by following research questions:

a) What are the publication trends in digital accounting research, and how has the field evolved over time?
b) Who are the most influential authors, institutions, and journals in digital accounting research, and how is their impact reflected in bibliometric indicators?
c) How do citation networks across countries and co-occurrence networks of keywords reveal the knowledge structure and collaboration patterns in digital accounting research?
d) What are the dominant research issues, gaps, data types, and methods employed in digital accounting studies?
e) What challenges and limitations are highlighted in the field, and how have they evolved?
f) What future research directions can be anticipated through hybrid bibliometric analysis and AI function-based foresight?

The study addresses six core research questions on publication trends, influential contributors, knowledge structures, theoretical and methodological patterns, research gaps, and future directions. By synthesizing insights from bibliometric mapping and AI-assisted semantic analysis using Scopus data, this research provides a comprehensive and forward-looking understanding of digital accounting's evolution, current state, and future trajectory.

2. Literature Review

Digital accounting has progressed through three major stages, beginning with early automation (1980s-2000s), when AIS and ERP systems digitized routine tasks such as bookkeeping and financial reporting. These systems improved accuracy and efficiency but largely replicated manual processes without transforming professional roles (Steinbart, 2016). From the early 2000s to around 2015, advances in cloud computing and mobile technologies expanded real-time access, scalability, and collaboration, making digital accounting tools more accessible to small and medium enterprises and enabling integration between financial and operational data (Maruf, 2025). Since 2015, the field has entered a new phase defined by intelligent and autonomous technologies AI, machine learning, blockchain, RPA, and big data analytics which support predictive analysis, continuous auditing, and automation of complex processes (Dai & Vasarhelyi, 2017; Issa et al., 2016; Richins et al., 2017). These innovations require accountants to develop interdisciplinary competencies and shift from traditional recordkeeping to analytical and advisory roles (Moll & Yigitbasioglu, 2019).

Despite the benefits, organizations face significant implementation challenges, including cybersecurity risks, data privacy concerns, and regulatory uncertainty regarding AI-generated evidence and blockchain-based systems (Rabbani, 2024; Yoon et al., 2015). These challenges are especially acute in small and medium enterprises and in developing countries, where limited infrastructure, constrained investment capacity, lack of internal IT support, and anxiety about job displacement and changing professional identity make it difficult to redesign processes and fully leverage advanced technologies such as AI, blockchain, and big data analytics (Wang & Wang, 2023).

Recent literature identifies three major emerging trends: integration of ESG and sustainability reporting into digital accounting systems, the expanding use of generative AI and large language models, and growing concern with ethics and algorithmic bias (Bommasani et al., 2021; Darmawati et al., 2025; Muhammad Usman Hadi, 2023; Yunita Awang, 2024). Digital platforms increasingly support real-time sustainability metrics, blockchain-based traceability, and AI-driven analysis of unstructured ESG disclosures, while LLMs are used for automated financial narratives and semantic analysis of complex regulations; at the same time, these developments raise questions about explainability, accountability, and fairness in AI-assisted judgments, which the literature frames as central challenges for regulators, auditors, and professional bodies (Yunita Awang, 2024).

Existing bibliometric studies document rapid growth in digital accounting publications since 2015 and identify influential authors, institutions, journals, and clusters around AI, blockchain, cloud accounting, education, and digital transformation (Avşar & Pelit, 2025; Darmawati et al., 2025; Mohd Nadzari et al., 2024). However, they remain largely descriptive and atheoretical, rely mainly on citation counts and keyword co-occurrence, provide limited analysis of theories, methods, and data types, and rarely discuss geographic and language biases, leaving important conceptual, methodological, and contextual gaps. To address these gaps, the literature increasingly calls for hybrid bibliometric semantic approaches that integrate VOSviewer mapping with KH Coder content analysis and AI-assisted prompt engineering. Such an approach enables deeper understanding of theoretical foundations, methodological patterns, emerging intersections, and underexplored research areas.

Overall, the literature portrays digital accounting as a field transformed by technological innovation and shaped by organizational and institutional forces. By synthesizing theoretical perspectives with bibliometric and semantic insights, researchers gain a comprehensive understanding of digital accounting's evolution, current challenges, and future directions.

3. Methodology

3.1 Research Design

This study adopts a hybrid bibliometric and semantic analysis integrating four complementary tools: Publish or Perish for bibliographic data retrieval, VOSviewer for network visualization, KH Coder for content analysis, and Google Sheets AI functions for categorization. The design follows post-positivist epistemology, Integrating quantitative network indicators with qualitative semantic analysis through a multi-method triangulation approach.

3.2 Data Source and Search Strategy

Scopus was selected as the primary bibliographic database for its comprehensive coverage, standardized metadata quality, and tool compatibility. The study examines publications from January 1, 2010 to December 31, 2024 (15 years).

The search terms were carefully designed to encompass a wide range of topics within the domain of digital accounting. The search string such as "digital accounting" OR "digitized accounting" OR "accounting digitalization" OR "digitalisation of accounting" OR "digitalization of accounting" OR "cloud accounting" OR "online accounting" OR "electronic accounting" OR "computerized accounting" OR "automated accounting" OR "e-accounting" OR (accounting W/3 ("blockchain" OR "artificial intelligence" OR "machine learning" OR "robotic process automation" OR rpa OR "big data" OR "Industry 4.0" OR xbrl OR "digital transformation")).

The search was executed on May 22, 2025 using Scopus Advanced Search interface. Complete search parameters were:

- Search fields: Article Title, Abstract, Keywords
- Document types: Article, Book Chapter, Conference Paper, Review, Book
- Source types: Journals (peer-reviewed)
- Language: English
- Subject areas: Business, Management and Accounting; Economics, Econometrics and Finance.
- Date range: 2010-2024
- Initial retrieval: n = 1,860 documents

3.3 Inclusion and Exclusion Criteria

a) Included: Peer-reviewed articles with substantive focus on digital technologies in accounting, auditing, financial reporting, or accounting education.
b) Excluded: Peripheral technology mentions, non-accounting domains, editorials, conference proceedings, duplicates, inaccessible abstracts.
c) Screening Process: Three-stage PRISMA-like protocol with independent dual-reviewer assessment; disagreements resolved through senior researcher consultation. Final sample: n = 616 (1,244 excluded = 66.9%).

3.4 Bibliometric Tools

a) Publish or Perish: utilizes bibliometric data such as publication counts and citation numbers to generate various metrics, including the h-index, g-index, and total citations identifying influential authors, institutions, journals (Ahmi, 2021).
b) VOSviewer: conducting visualization and structural analysis of bibliometric networks, focusing on co-authorship collaborations, citation linkages, co-citation configurations, and keyword co-occurrence relationships (Paul et al., 2025; Swain, 2011; Van Eck & Waltman, 2010).
c) KH Coder: Quantitative content analysis enabling word frequency analysis, co-occurrence network generation, and correspondence analysis between textual content and categorical variables (HIGUCHI, 2017).
d) Google Sheets AI function: AI-assisted semantic categorization enabling extraction of research objectives, methodologies, theoretical frameworks, research gaps, data type, and future directions from abstracts at scale.

Prompts used in Google Sheets AI function:

a) Research Issues:
- Extracting prompt: Identify the primary research issue or problem addressed in this paper. Describe in 2 words.
- Standardizing prompt: Classify the term into one of these topics: Digital technologies in accounting and auditing (DTA), Accounting information quality, sustainability, and decision (IQS), Adoption, implementation, and performance of technologies/systems (AIP), Governance, ethics, risk, and regulation (GER), Traditional accounting domains touched by digital tools (TAD). Choose "None" if no suitable choice is found.

b) Research gaps:
- Extracting prompt: Based on the study's aims and context, infer the research gap this paper is trying to fill. Why was this study necessary? Describe in 3 words.
- Standardizing prompt: Classify the term into one of these topics: Empirical evidence and context gaps (EEC), Adoption, usage, and moderating-factor gaps (AUM), Methods, data, and framework gaps (MDF), Governance, ethics, risk, and regulation gaps (GER), Human, organizational, and education gaps (HOE), and Theoretical and overview/structure gaps (TOS). Choose "None" if no suitable choice is found.

c) Methodologies:
- Extracting prompt: Identify the research methodology was used. Describe in 2 words.
- Standardizing prompt: Categorize research methodology used in the paper into one of these: Conceptual/Theoretical Methods (CTH), Mixed Methods (MIX), Literature Review and Synthesis Methods (LRS), Qualitative/Interpretive Methods (QIM), Survey and Questionnaire-Based Methods (SQM), Quantitative/Empirical-Statistical Methods (QES). Choose "None" if no suitable choice is found. Select one if more than two choices are available.

d) Data types:
- Extracting prompt: What type of data was used in this research? Describe in 2 words.
- Standardizing prompt: Categorize the data types used in the paper into one of these: Survey and primary response data (SPR), Qualitative interview and case data (QIC), Numerical / market / statistical data (NMS), Literature-based and bibliometric data (LBD), Big data and mixed/combined data (BMD). Choose "None" if no suitable choice is found. Select one if more than two choices are available.

3.5 Data Analysis Procedures

Phase 1: Descriptive Analysis: Publication trends, influential contributors, geographic distribution using Publish or Perish and VOSviewer.

Phase 2: Network Analysis: Co-authorship, citation, and keyword co-occurrence networks revealing thematic clusters and collaboration patterns.

Phase 3: Semantic Analysis: KH Coder co-word analysis and correspondence analysis identifying five research issue categories: Digital Technologies in Accounting/Auditing (DTA), Adoption/Implementation/Performance (AIP), Information Quality/Sustainability (IQS), Traditional Accounting Domains (TAD), Governance/Ethics/Risk (GER).

Phase 4: AI Categorization: Google Sheets AI extracted research characteristics: research issues, research gap research data types, and methodology.

Integration: Convergence analysis ensuring AI Categorization aligned with KH Coder; AI-identified relationship verified against sparse network regions; quantitative metrics contextualized through qualitative interpretation.

4. Results

4.1 Publication Trends by Year

Figure 1 shows the digital accounting publications were very limited until 2016 but grew steadily from 2017 with the rise of cloud systems, blockchain, and automation. The important turning point was the COVID-19 pandemic in 2019-2020, accelerated digital transformation and doubled research output. Growth remained moderate in 2021-2022, but from 2023 to 2024 publications surged up by about 70%, driven by AI, machine learning, and sustainability reporting.

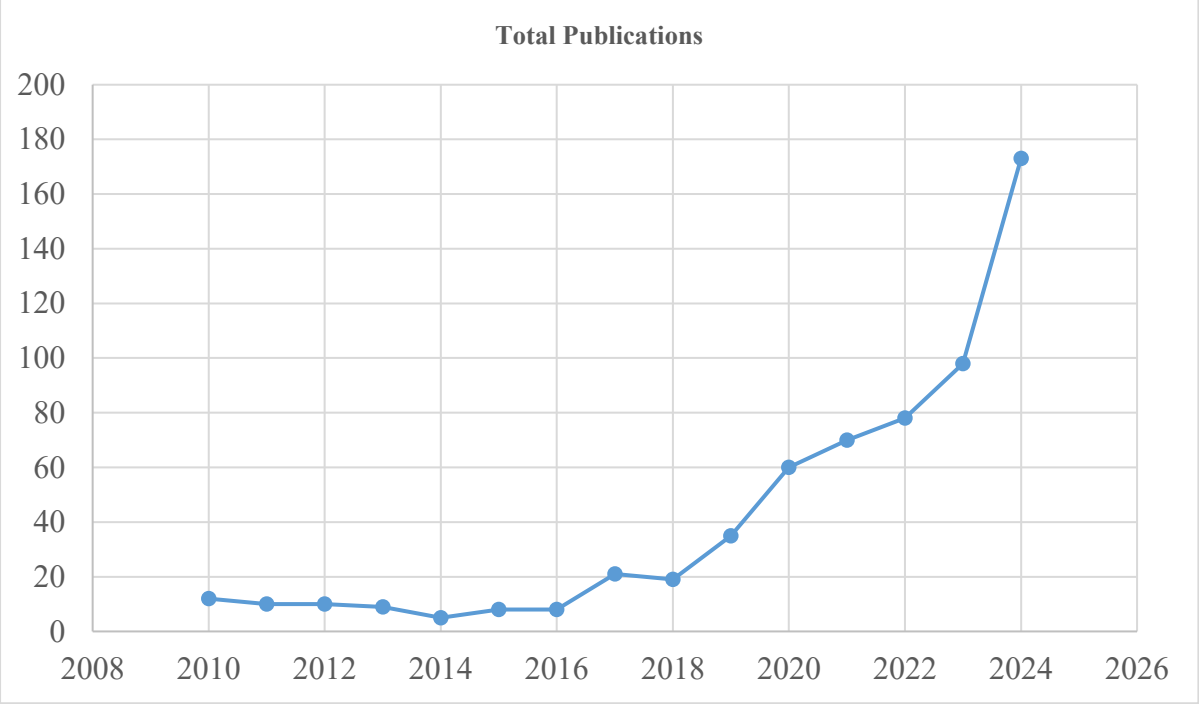

Figure 1: Publication trends by year

4.2 Influential Institution

Table 1: Most influential institutions (Excluded Self-Citation)

Affiliation	TC	TP	Year	Cites/Year	*h*	*g*
Rutgers University-Newark (USA)	1,220	5	2015-2023	124.80	4	5
Babson College (USA)	653	7	2017-2024	81.50	6	7
Hanken - Svenska handelshögskolan (Finland)	366	11	2019-2022	60.67	6	11
Loyola University Maryland (USA)	363	2	2015-2020	35.50	2	2
Bond University (Australia)	300	3	2012-2014	23.69	2	3
Brunel University London (UK)	299	3	2021-2024	78.25	3	3
University of Southern California (USA)	282	5	2017-2023	37.25	4	5
RMIT University (Australia)	276	7	2019-2024	46.67	3	7
Jamia Millia Islamia (India)	249	2	2021-2022	62.75	2	2
The University of Sydney (Australia)	238	3	2017-2020	30.50	3	3

Note: TC=Total citations; TP=Total publications; Year=Publication years; Cites/Year=average number of citations per year; h=H-index; g=G-index

Table 2 presents the most influential institution in digital accounting research is Rutgers University-Newark, which leads with the highest citations and strong yearly impact, reflecting its long-standing leadership in accounting research and global academic networks, also suggests its research is foundational likely addressing early or novel topics such as blockchain or AI in accounting which continue to be widely referenced. Babson College follows as a key player, combining a high number of publications with strong citation performance, showing both productivity and influence likely focused on innovation and applied digital tools in business. In Europe, the Hanken School of Economics is highly influential with the largest publication volume, demonstrating its consistent commitment and growing authority in this field. Brunel University London also stands out, achieving high citation averages despite fewer papers, which highlights the strong quality and global relevance of its research.

4.3 Influential Authors and Research Topics

Table 2: Most Influential Authors (Excluded Self-Citation)

Author	TC	TP	Year	C/Y	h	g
Vasarhelyi, Miklos Antal (Rutgers University-Newark)	992	5	2015-2022	99.20	5	5
Kokina, Julia (Babson College)	579	5	2017-2024	72.38	4	5
Lehner, Othmar Manfred (Hanken School of Economics, Finland)	363	10	2021-2022	90.75	6	10
Eisl, Christoph (University of Applied Sciences Upper Austria)	123	4	2019-2022	20.50	2	4
Leitner-Hanetseder, Susanne (University in Austria)	122	4	2019-2024	20.33	2	4
Secinaro, Silvana Filomena (University of Turin, Italy)	116	4	2020-2024	23.20	3	4
Calandra, Davide (University of Turin, Torino, Italy)	113	4	2021-2024	28.25	3	4
Almaqtari, Faozi A (A'Sharqiyah University, Ibra, Oman)	75	4	2023-2024	37.50	3	4
Al-Okaily, Manaf (Jadara University)	74	4	2023-2024	37.00	4	4
Chiu, Victoria (School of Business, United States)	74	4	2019-2024	12.33	2	4

Note: TC=Total citations; TP=Total publications; Year=Publication years; Cites/Year=average number of citations per year; *h*=H-index; *g*=G-index

Table 3: Research Topics from Top Influential Authors

Authors	Titles
Vasarhelyi, Miklos Antal	Emerging technologies in accounting and auditing, including data analytics, machine learning, RPA, blockchain, and big data.
Kokina, Julia	RPA and AI transforming accounting, auditing, and accountants' roles.
Lehner, Othmar Manfred	Artificial intelligence and digital transformation in accounting and auditing: organisational, ethical, and governance implications.
Eisl, Christoph	AI and digital transformation in accounting practices and organizations.
Leitner-Hanetseder, Susanne	Digital transformation of accounting through AI, RPA, and emerging technologies.
Secinaro, Silvana Filomena	Applications of AI and blockchain in accounting, auditing, and public sector research.
Calandra, Davide	AI and blockchain applications in accounting and auditing.
Almaqtari, Faozi A	Digital accounting, IT governance, and the transformative role of AI and Industry 4.0 in accounting and auditing.
Al-Okaily, Manaf	Cloud-based and Blockchain technologies in AIS

Table 2&3 reveal the most influential authors in digital accounting are led by Miklos Antal Vasarhelyi, who focus on AI, RPA, and blockchain set the foundation of the field. The consistent prominence of top authors shows that their influence is grounded in pioneering and timely contributions on AI, RPA, and digital transformation rather than citation volume alone. Their stable impact contrasts with newer authors whose visibility is still developing, reflecting how topic relevance and sustained output drive long-term recognition. This balance between established leaders and emerging scholars highlights that true academic influence in digital accounting depends on both the quality and durability of research contributions.

4.4 Citation by Country

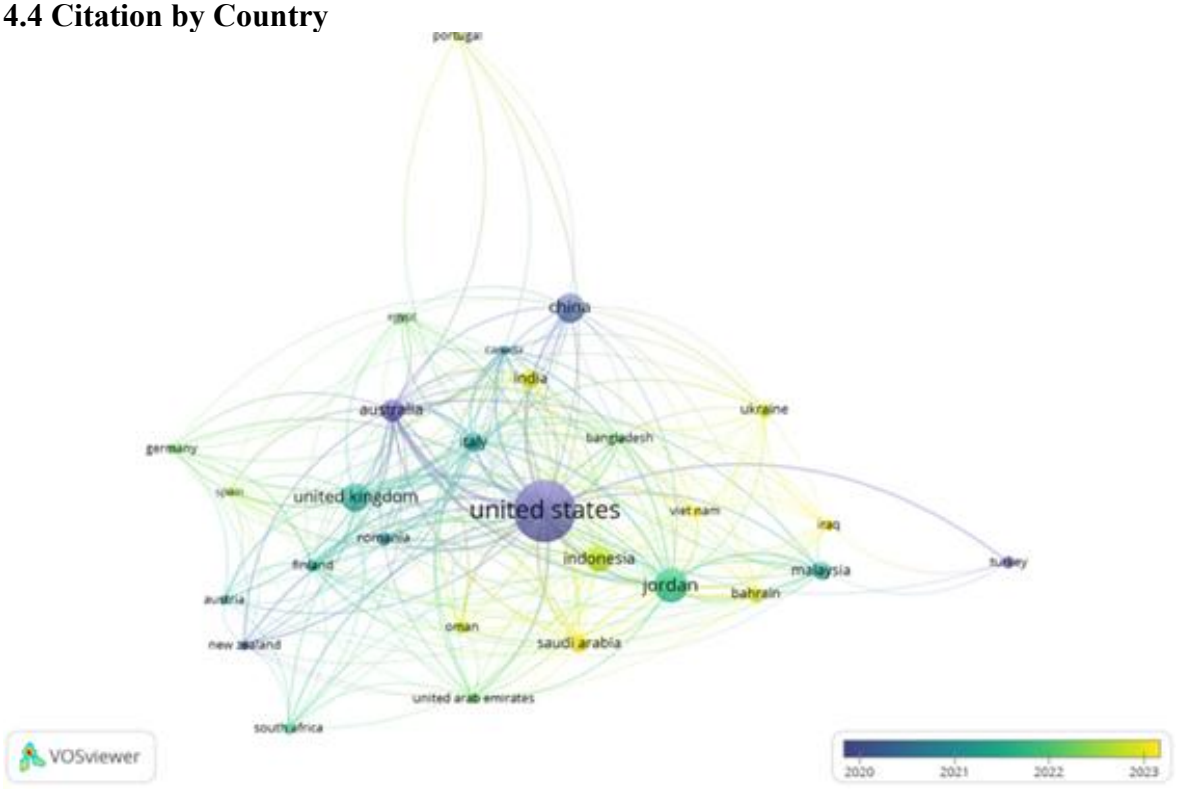

Figure 2: Network visualization map of the citation by countries

Figure 2 presents the United States clearly stands out as the most influential contributor, with the largest node and strongest citation links, indicating its central role in both producing and

disseminating impactful research. China, Australia, and the United Kingdom follow with significant citation activity, suggesting strong research output and international collaboration. Notably, countries like Jordan, Malaysia, and Indonesia have gained visibility more recently (as indicated by the lighter colors), reflecting growing interest and emerging contributions in digital accounting. The interconnectedness of nodes shows a robust international network, with frequent citation exchanges among Western and Asian countries. This pattern suggests that digital accounting is a globally relevant topic, influenced by both mature economies and rapidly developing regions. The map highlights the importance of academic collaboration and shows that while a few nations lead in citations, many others are becoming increasingly active in the field, particularly in the last two to three years.

4.5 Co-occurrence Analysis

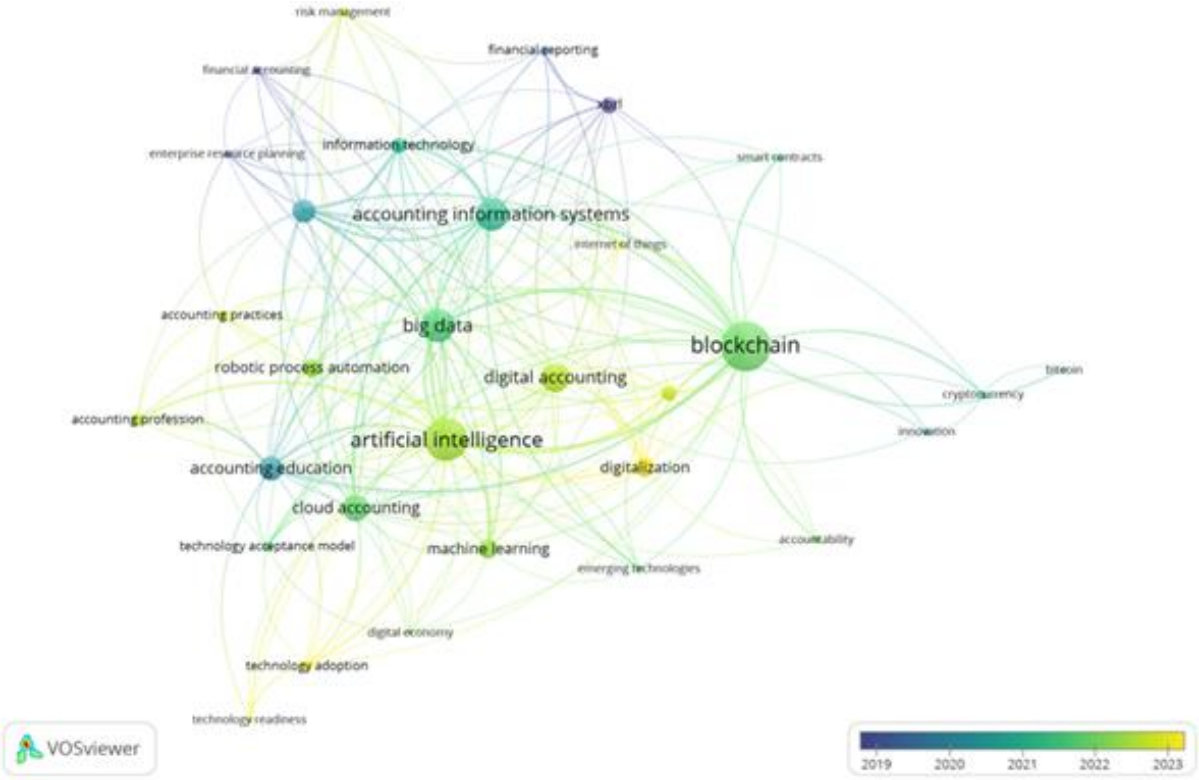

Figure 3: Co-occurrence of Keywords

Figure 3 presents a network visualization map of the co-occurrence of keywords in the evolving landscape of digital accounting research. The "blockchain" is the most influential and frequently studied themes in digital accounting research, indicating the central role in reshaping accounting systems through enhanced transparency, automation, and data analytics. It's strongly linked with related concepts such as "artificial intelligence", "big data", "cloud accounting", and "machine learning", which collectively reflect a growing emphasis on technological advancement and intelligent systems in the accounting domain. The presence of emerging keywords like "digitalization", "technology readiness", and "innovation", particularly concentrated in recent years (2022–2023), suggests a shift in scholarly focus toward understanding how digital technologies are adopted and integrated in accounting practice. Although traditional topics such as "accounting information systems" and "financial reporting" remain relevant, they now serve more as foundational elements that support research on transformative technologies. This evolving pattern highlights a transition in the field toward a more future-oriented and innovation-driven research agenda.

4.6 Semantic and Contextual analysis

Form figure 4, the bibliometric analysis of digital accounting research identifies main trends in the areas of research issues, research gaps, research data types, and methodological approaches. The most dominant research issue is the adoption, implementation, and performance of digital technologies, with a proportion of 38.7%, followed by studies on the topics of digital technologies in accounting and auditing. These represent a strong emphasis on how organizations traditional to digital systems and how the technologies influence accounting outcomes. Major research gaps identified in the literature are adoption, usage and moderating-factor gaps at 25.12% and method, data, and framework gaps, such as, notwithstanding the extensive nature of the research on the adoption of technology, even now, scholars lack comprehensive models that integrate organizational, human, and contextual factors. Data types which is Literature-based and bibliometric data (31.08%) and survey data (23.45%) dominate the data types used, showing that researchers rely extensively on existing literature and primary perception due to the limited access to firm-level digital accounting data.

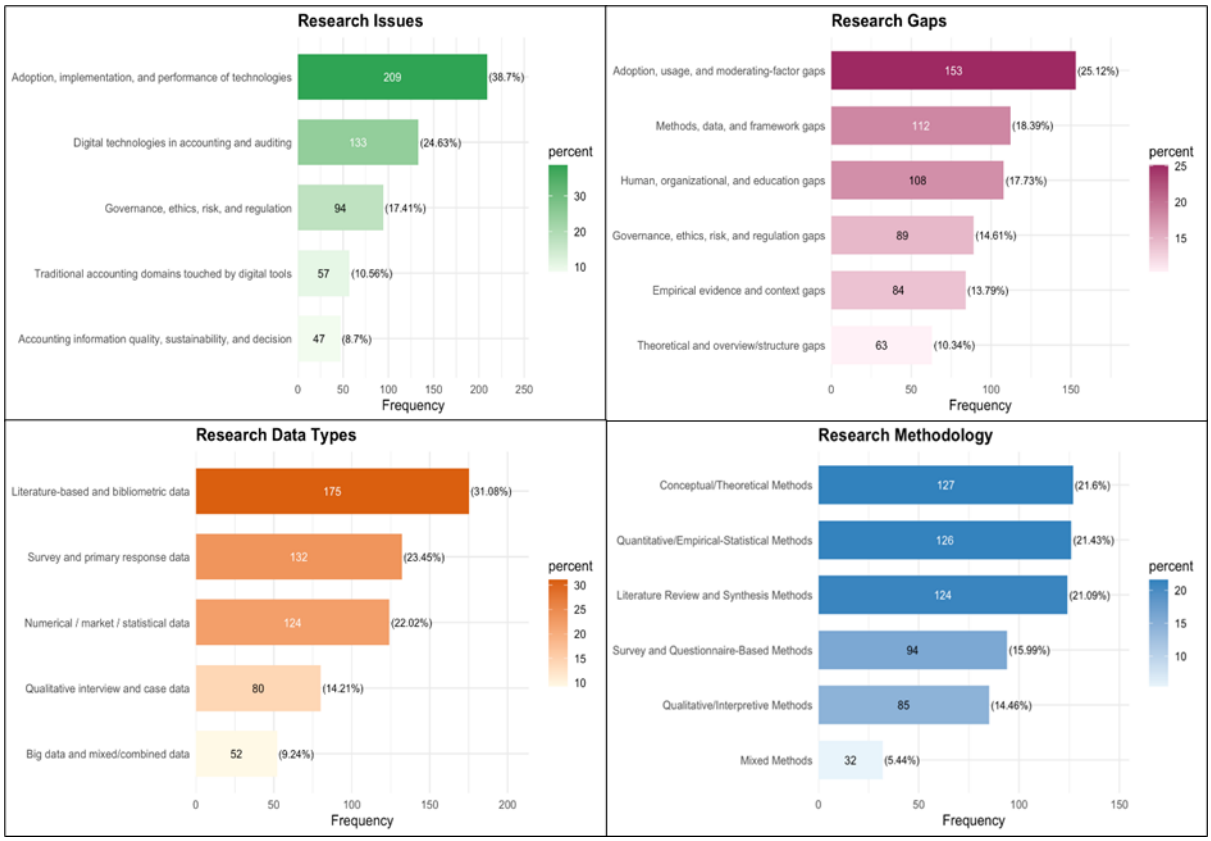

Figure 4: Research categorizations

Methodologically, the conceptual/theoretical approach at 21.6%, the quantitative empirical methods at 21.43%, and literature review methods at 21.09% are almost equally presented, meaning that the field is still maturing and balancing between theory building and empirical validation. Mixed methods remain very limited due to the challenges of gathering the diverse sources of data in digital contexts. These findings reveal that the technology adoption concern drives digital accounting research, access to organizational datasets is limited, and the need for stronger theoretical and methodological foundations has changed. This pattern reflects the beginning stage of development of digital accounting in various countries and the evolution of the digital shift within the accounting profession.

4.7 Co-occurrence Network of Words

Figure 5 illustrates the co-occurrence network in abstracts shows that "technology" is the central theme in digital accounting research, connecting to words like blockchain, application, development, impact, and practice. This indicates that most studies focus on how digital technologies are introduced and used in accounting. The word "information" and "system," linked with terms such as quality, financial, reporting, and digital, reflecting strong interest in how digital systems improve information quality and financial reporting processes. Another word like adoption, cloud, effect, and framework highlight technology adoption, and suggesting that understanding adoption drivers remains a major research priority. Human and professional aspects appear in the cluster around skills and knowledge, connected to accountant, analytics, and education, indicating growing attention to digital competence and training needs. Emerging technologies such as AI, RPA, and Big Data appear as smaller but important subgroups, showing researchers are increasingly examining new tools and their implications.

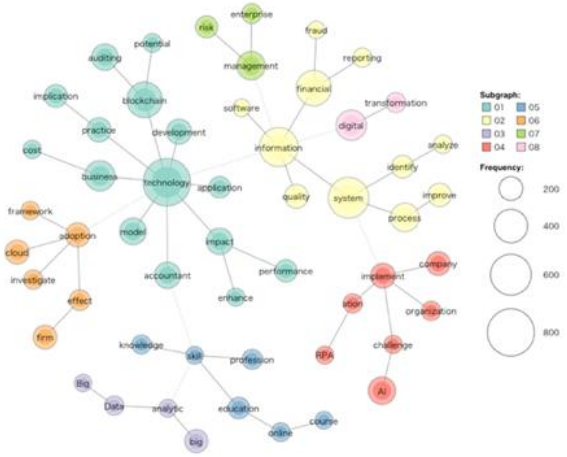

Figure 5: Co-occurrence Network of words-words (Abstracts)

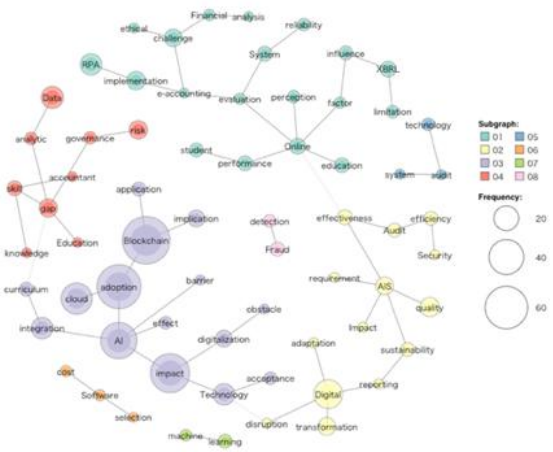

Figure 6: Co-occurrence Network of words-words (Research Issues)

Figure 6., the co-occurrence network of research issues, shows several major clusters that define the focus of digital accounting studies. The largest cluster centers on adoption, strongly linked with blockchain, AI, cloud, impact, integration, and digitalization. This indicates most of the research examines how emerging technologies are being adopted, what barriers exist, and what impacts to accounting systems and organizations. Another cluster AIS and digital transformation, connected to efficiency, quality, security, sustainability, and reporting. This showing how digital systems improve audit quality, reporting reliability, and organizational performance. The cluster is small but important like e-accounting and online education, associated with evaluation, performance, perception, and students. This reflects growing research attention on digital skills, e-learning, and readiness of accountants to work with advanced digital tools, reinforcing the importance of professional development. The network also highlights governance, risk, fraud, and data analytics as emerging research issues, showing that digital accounting research increasingly addresses security challenges and the need for ethical, risk-aware systems.

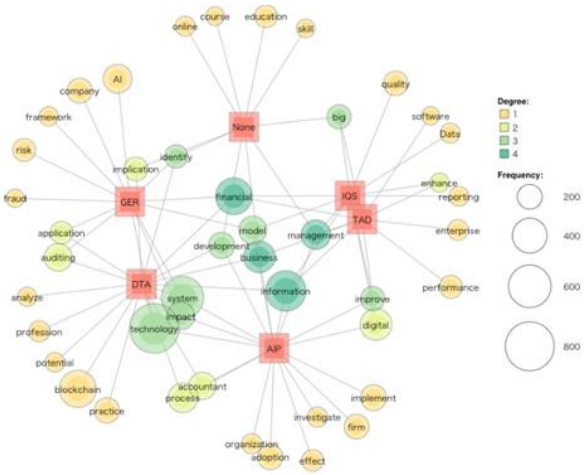

Figure 7: Co-occurrence Network of words-variable of abstracts and research issues

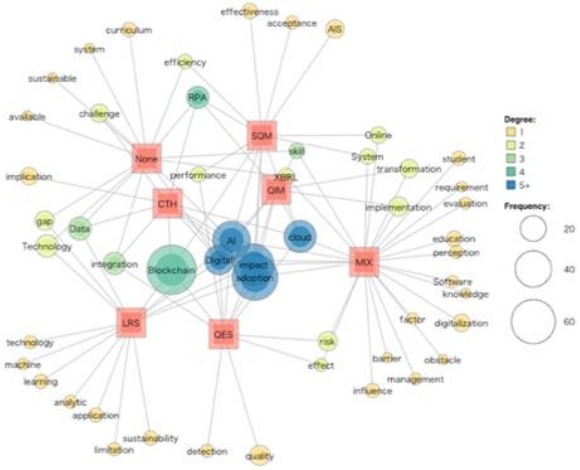

Figure 8: Co-occurrence Network of words-variable of research issues and research method

Figure 7., the word-variable network, shows how different research issues in digital accounting are connected to specific themes appearing in abstracts. Digital Technologies in Accounting and Auditing (DTA) is the most strongly connected category, linking with high-frequency terms such as technology, system, blockchain. This indicates that research on digital technologies covers broad, foundational themes related to technological change and system transformation in accounting. Adoption, Implementation, and Performance (AIP) is closely linked with words like organization, adoption, effect, investigate, and accountant, reflecting a focus on the practical challenges organizations face when adopting new technologies and the performance outcomes of implementation. Information Quality, Sustainability, and Decision (IQS) connects to quality, reporting, enhance, performance, and enterprise, showing that this research issue emphasizes how digital tools improve reporting quality, sustainability practices, and decision-making accuracy. Traditional Accounting Domains (TAD) is linked to terms such as digital, improve, business, management, and information, suggesting that digital tools are reshaping conventional areas like management accounting, reporting processes, and business operations. Governance, Ethics, Risk, and Regulation (GER) connect strongly with fraud, risk, governance, identity, and implication. This indicates that concerns about fraud detection, ethical issues, and regulatory impacts are central within this research area.

Figure 8., the words-variable network, shows that different research methodologies in research topics of digital accounting. Mixed Methods (MIX) appears as the most central because issues like digitalization, management, obstacles, and implementation require both quantitative evidence and qualitative insights. Quantitative/Empirical-Statistical Methods (QES) cluster around performance, quality, and sustainability related terms, since these topics rely heavily on measurement and statistical testing. Literature Review and Synthesis Methods (LRS) connect strongly with technology-oriented terms such as machine learning, analytics, and application, reflecting that emerging technologies are often first explored through reviews. Conceptual/Theoretical Methods (CTH) link to themes like integration and performance because these areas require theoretical framing and model development. Survey and Questionnaire-Based Methods (SQM) are associated with acceptance, skills, and AIS-related keywords, as user perception and competency are best captured through survey data. Qualitative/Interpretive Methods (QIM) connect to system transformation and XBRL, which commonly rely on case-based interpretive approaches.

5. Discussion

This study shows that digital accounting has evolved from a niche research area into a mainstream academic domain, with publication activity accelerating notably after 2019-2020 and increasing sharply in recent years. This growth coincides with the COVID-19 driven acceleration of digital transformation and advances in technologies such as generative AI and enterprise blockchain, suggesting that research activity in digital accounting responds closely to technological inflection points. The prominence of Q1 journals particularly Accounting, Auditing and Accountability Journal and the International Journal of Accounting Information Systems indicates that digital accounting has achieved legitimacy within core accounting scholarship rather than remaining confined to specialized technology outlets.

Citation network analysis reveals strong geographic concentration, with the United States leading in research output and impact, followed by China, Australia, and the United Kingdom. This pattern reflects disparities in research infrastructure, English-language publication dominance, and institutional prestige effects, as leading universities form self-reinforcing scholarly networks. At the same time, the increasing visibility of countries such as Jordan, Malaysia, Indonesia, and India suggest gradual diversification of the research landscape, although substantial regional inequalities persist.

Keyword co-occurrence analysis identifies artificial intelligence and blockchain as the most influential themes, reflecting complementary research trajectories focused on efficiency, prediction, trust, and verification. Their strong connections with big data, cloud accounting, and machine learning indicate a shift toward integrated digital ecosystems rather than isolated technology adoption. The increasing prominence of future-oriented concepts such as digitalization, innovation, and technology readiness suggest that research is moving from adoption intent toward implementation challenges and broader organizational implications.

Methodologically, the field displays relative balance among conceptual, quantitative, and review-based studies, indicating pluralism but also fragmentation. Heavy reliance on survey data and secondary literature highlights limited access to firm-level implementation data, constraining insight into actual processes and outcomes. Mixed-method approaches remain underutilized despite the socio-technical complexity of digital accounting systems.

Substantively, the literature remains strongly adoption and performance focused, while governance, ethics, regulation, sustainability, and distributional effects receive comparatively limited attention. Although sustainability and ESG-related research has emerged recently, it remains peripheral relative to its potential impact. Based on these results, future research would benefit from greater use of longitudinal and mixed-method designs, stronger theoretical integration, deeper examination of governance and accountability in AI-enabled accounting, and more critical perspectives on inequality, power, and professional transformation.

6. Conclusion

This study provides an evidence-based mapping of digital accounting research through an integrated bibliometric and semantic analysis framework. The results demonstrate sustained growth in scholarly output and increasing concentration around advanced digital technologies, particularly artificial intelligence, blockchain, cloud accounting, and data analytics. Network analyses reveal a structured but concentrated intellectual landscape, while semantic analysis

shows that research predominantly addresses adoption, implementation, auditing, and performance-related issues.

Despite the expanding literature, the findings indicate persistent theoretical fragmentation and limited methodological diversity. Emerging themes such as sustainability reporting and data governance remain underrepresented, suggesting opportunities for future research. By combining bibliometric mapping with AI-assisted semantic analysis, this study offers a robust overview of existing research patterns and provides a foundation for more theoretically integrated and methodologically diverse studies in digital accounting.

Limitations

This study has certain limitations that should be taken into account when interpreting the findings. First, the analysis relies solely on publications retrieved from the Scopus database, which may exclude some regional journals and practitioner-based publications that are not indexed in Scopus. Second, the focus on English-language abstracts may bias semantic analysis toward dominant academic discourses. Third, co-word and AI-assisted semantic analyses rely on abstract-level text and therefore may not reflect the full theoretical or methodological depth of the complete articles. Finally, bibliometric indicators reveal patterns of scholarly activity and influence but do not assess the quality or real-world effectiveness of digital accounting technologies.

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Conflict of Interest Statement

The authors report no conflicts of interest associated with this publication. The study was undertaken without any commercial or financial involvement that could be interpreted as a potential conflict of interest.

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