

An In-depth Bibliometric Study of Digital Innovations in Renewing Organization's Accounting and Financial Management Practices

Budi Prijanto

Accounting Department, Universitas Gunadarma, Jakarta, Indonesia

Abstract: This research aims to conduct a bibliometric analysis of the literature related to digital innovation in accounting practices and organizational financial management. Through the selection of PubMed, IEEE Xplore, and Google Scholar databases we identified and analyzed key articles from 1985 to 2023. The results of the analysis included the identification of theme clusters, research trends over time, most cited literature, and author collaborations. The six major theme groups were identified, including audit, big data, digital finance, and digital transformation. The findings show a shift in focus from strategic issues to responses to the latest developments such as the pandemic and artificial intelligence. The highest-cited articles highlighted the role of artificial intelligence, robotics, and digital transformation in the business world. The identification of the most frequently used terms opens up potential for further research. The visualization of the writer's collaboration provides an overview of the relationship between the researchers. This research provides in-depth insights into current trends, key literature, and potential for further research in the field of digital innovation in the context of organizational accounting and financial management. Despite its limitations, including limitations in literature coverage and bibliometric analysis, this research provides a foundation for further research in the exploration of under-researched topics.

Keywords: Digital Innovation, Accounting, Financial Management, Bibliometric Analysis

Introduction

In an era of globalization characterized by dynamic and rapid change, the presence of information and communication technology (ICT) has become a major catalyst in changing the business landscape, including in accounting practices and organizational financial management (Kadir, 2012). The phenomenon of digital innovation involving the application of advanced technologies such as big data, artificial intelligence (AI), cloud technology, data analytics, and digital platforms has changed the traditional paradigm of organizing and reporting the financial activities of an organization (Sukarni, 2022). The development of information and communication technology (ICT) has had a significant impact on various sectors, including the realm of accounting and organizational financial management (Aprianto, 2021; Rasul & Hamid, 2008). The phenomenon of digital innovation is a must in facing dynamic changes in the era of globalization. Therefore, this research aims to conduct an in-depth bibliometric study of digital innovation in the renewal of accounting practices and organizational financial management.

Digital innovation refers to the application of digital technologies and IT-based solutions including big data, artificial intelligence (AI), cloud technology, data analytics, and other digital platforms (Gonçalves et al., 2022). The application of these innovations has opened up new opportunities and changed the paradigm in preparing financial statements, risk management, and decision-making at the organizational level (Kurilova & Antipov, 2020; Thursina, 2023). Therefore, an in-depth understanding of the trends, developments, and impact of digital innovations in the context of accounting is essential for professionals, researchers, and practitioners in this field.

Through a bibliometric study, this research aims to identify and analyze the patterns of relevant scientific literature, current research, as well as the contribution of researchers in the development of digital innovation in the field of accounting and financial management. By extracting information from relevant literature, this study is expected to provide an in-depth understanding of the latest developments, trends, and potential for further research in this field.

This study does not only involve technological aspects, but also explores the impact of digital innovation on policy, regulation, ethics, and information security aspects in the accounting context. Thus, the results of this study are expected to provide a holistic view of digital innovation in the renewal of accounting practices and financial management of organizations. In addition, this research also has the potential to contribute to the development of theory, practice, and policy in accounting in the face of this digital transformation era.

Literature Review

1. Digital Innovations in the Business Sector

Digital innovation in the business sector involves the strategic incorporation of advanced digital technologies to revolutionize various aspects of operations (Kurilova & Antipov, 2020). This ongoing process aims at improving efficiency, growing competitiveness, and opening up new opportunities for organizations. Key impact areas include automation and efficiency improvements through technologies such as Robotic Process Automation (RPA) and workflow automation (Bughin et al., 2019). Data analytics, powered by big data and predictive analytics, enables businesses to extract meaningful insights for informed decision-making (Favoretto et al., 2022). Artificial Intelligence (AI) and Machine Learning (ML) contribute to improved customer service through chatbots and predictive maintenance for equipment. Cloud computing offers scalability and flexibility, encouraging remote collaboration and adaptive business models (Kraus et al., 2022). E-commerce and digital marketing leverage online platforms and personalized strategies to reach a global audience. Blockchain technology ensures transparency in the supply chain, while IoT devices optimize production processes (Kreiterling, 2023). Cyber security measures, including advanced threat detection and biometric security, protect sensitive data. Augmented and virtual reality (AR/VR) can be applied in training, simulation, and immersive retail experiences. Businesses that adopt digital transformation strategies, such as agile practices and cultural change, are better positioned to thrive in a dynamic and competitive landscape. Overall, digital innovation is a continuous and multifaceted journey that empowers businesses to thrive, adapt, and excel in the digital age (Bughin et al., 2019; Busulwa & Evans, 2021; Gigauri et al., 2023).

2. Accounting Practice Renewal

Accounting practice renewal involves modernizing and updating financial management approaches within an organization. This process responds to dynamic changes in the business landscape, technological advances, and regulatory frameworks (McKendrick, 2007). Technologically, businesses are integrating advanced accounting software and cloud-based solutions to streamline processes and improve accuracy (Walley et al., 1994). Automation of routine tasks is becoming commonplace, freeing up time for accountants to focus on strategic activities (Ghasemi et al., 2011). Staying compliant with evolving accounting standards, such as IFRS and GAAP, remains important, in addition to adapting to new regulatory requirements, including those related to sustainability and ESG reporting (McKendrick, 2007). Data analytics tools are used to gain insights from financial data, while strong cybersecurity measures are implemented to protect sensitive information. Improved collaboration and communication mechanisms facilitate real-time access to financial information for key stakeholders (Ghasemi et al., 2011). Ongoing training for accounting professionals ensures they stay abreast of the latest principles, technologies, and best practices. Efficiency steps, cost reduction, and integration of ESG reporting increasingly characterize the evolving landscape of accounting practices, creating a dynamic and adaptable framework that aligns with the changing needs of the business environment (McKendrick, 2007).

3. Organization's Financial Management

Financial management in an organization includes planning, organizing, directing, and controlling its monetary resources, which has a major impact on overall management (Al-Hashimy et al., 2022). The ultimate goal is to maximize shareholder wealth and ensure long-term sustainability (Awan et al., 2015). The process involves various components, starting with financial planning, where budgeting helps with the allocation of resources and goal setting, as well as forecasts that predict future financial trends based on historical data and market analysis. Subsequently, capital budgeting takes place, which entails the evaluation and selection of long-term investment projects that are aligned with strategic objectives (Hunjra et al., 2010).

Financial control is critical, which involves ongoing monitoring and control of financial activities to ensure alignment with organizational objectives, incorporating strong internal controls and reporting systems (Antonovsky, 1987). Risk management is a very important responsibility, which involves identifying and mitigating financial risks that could adversely affect the organization, and utilizing tools and strategies to manage risks associated with currency fluctuations, interest rates, and market volatility (Spira & Page, 2003; Yang et al., 2022).

Working capital management addresses the efficient handling of short-term assets and liabilities to ensure day-to-day operational efficiency, balancing liquidity needs with resource optimization (Ahmad et al., 2022; Pratap Singh & Kumar, 2014). Financial reporting and analysis play an important role, in the preparation and dissemination of transparent financial reports and the conduct of analysis to inform decision-making (C. Li et al., 2014).

Cost control is fundamental, requiring careful monitoring and management to ensure efficiency while operating within budget constraints (Oliver, 2000). Funding decisions involve determining the optimal capital structure by balancing debt and equity and choosing appropriate funding sources such as loans, equity, or retained earnings (Hansen, 2009). Compliance and governance are paramount, requiring adherence to legal and regulatory requirements for financial reporting and disclosure, as well as maintaining ethical financial practices and a strong corporate governance framework. Effective financial management is integral to organizational success, demanding interdepartmental collaboration and a comprehensive understanding of economic, market, and industry conditions. Adaptation to the changing financial landscape is essential for competitiveness in today's dynamic business environment (Khvostikova et al., 2018).

Research Method

The methodology employed for this in-depth bibliometric study involved a systematic and comprehensive approach to collect and analyze relevant literature on digital innovations in accounting practices and organization's financial management. To ensure a thorough exploration of the scholarly landscape, three leading databases, PubMed, IEEE Xplore, and Google Scholar were carefully selected for their interdisciplinary coverage. A series of carefully crafted search strings incorporate key terms such as "digital innovation", "accounting practices" and "financial management". The study focused on publications from the last four decades (1985-2024) in English to maintain relevance and consistency. A multistep screening process, involving initial screening of titles and abstracts and subsequent full-text review, was undertaken to ensure the quality and alignment of the retrieved data with the research objectives. Bibliometric analysis used VOSviewer to visualize and analyze citation networks, co-authorship patterns, and co-occurrence of keywords. The metrics considered include several citations, a co-authorship network, and keyword occurrence analysis.

Research Data Metrics

Table 1. Research Data Metrics

Data Metrics	Information
Publication years	1985-2024
Citation years	39
Papers	980
Citations	264745
Cites/year	6788.33
Cites/paper	270.15
Cites/author	157388.30
Papers/author	504.63
Authors/paper	2.56
h-index	196
g-index	511
hI, norm	151
hI, annual	3.87

hA, index	84
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Source: *Output Publish or Perish*, 2024

Table 1 presents several relevant metrics for research data conducted in the period 1985 to 2024. A total of 980 papers were published during this period, with a total of 264,745 citations. On average, each paper had 270.15 citations, and the annual citation rate was 6788.33. Individually, a researcher has an average of 504.63 papers per study and 2.56 authors per paper. In addition, the h-index, which reflects the number of articles that have at least h number of citations, reached a value of 196, indicating a significant level of impact in this field of research. g-index, which measures the productivity of researchers, reached 511.

H-I, norm of 151 indicates that this research has a higher impact than the average in its field. H-I, annual of 3.87 indicates that there is a growth in impact each year. Finally, the hA index of 84 indicates that several researchers have had a significant impact on their contributions to this research. Overall, this data reflects the substantial history and impact of the research conducted in the period.

Results and Discussions

This bibliometric analysis, as mentioned earlier, aims at analyzing the patterns of the existing literature and also exploring the potential for future research. To answer this goal, a more specific breakdown was carried out and resulted in questions such as "How is the existing literature classified and grouped based on similar themes and topics?", "What are the research trends on this topic from year to year and which articles have the greatest impact in the period 1985 to 2024?", "What are the collaborations between the authors?", and finally "What are the potential topics for future research?". With the help of the VOS Viewer tool, all these questions can be answered precisely and comprehensively.

The first question related to the classification of the existing literature can be answered by utilizing the Network Visualization feature. The results of the analysis on this feature are attached in Figure 1 below. There is a complex visualization indicating that the topic related to digital innovation in accounting and financial management of organizations is a topic that has high complexity. This indicates that this topic has become a topic that attracts researchers' attention.

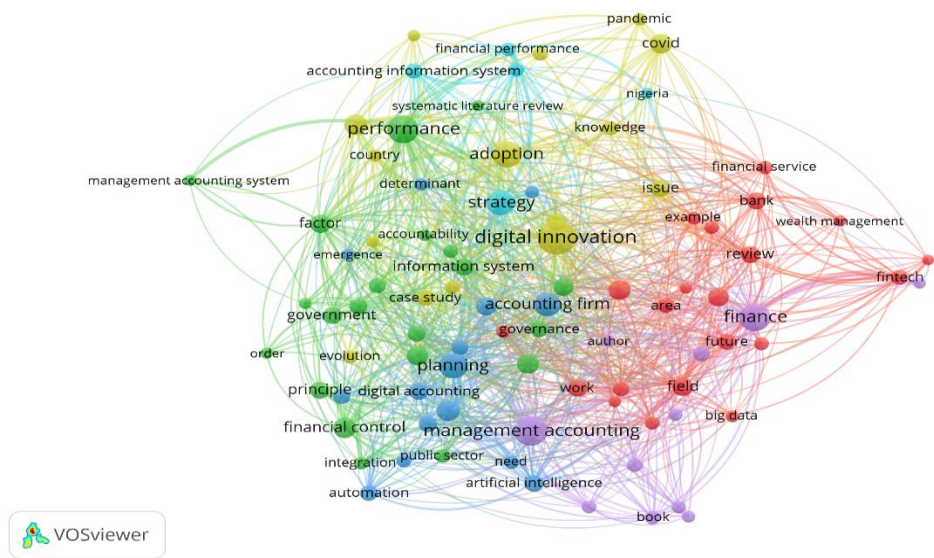


Figure 1. Network Visualization

Source: Database Analysis with VOSViewer, 202

Figure 1 above shows that there are six different contrasting colors: red, yellow, green, blue, purple, and light blue. These colors signify different groups. While the terms with the same color indicate that the terms are in the same

group and have a common theme or relationship with one another. Thus the literature on this topic is divided into six groups. The first group is represented in red with a total of 21 terms, the second group is represented in green with a composition of 21 terms, the third group is represented in blue with a total of 15 terms, the fourth group has a yellow color with a total of 15 terms, the fifth group has a purple color with 11 terms, and the sixth group is light blue with a total of 5 terms. Hereafter, these groups are referred to as clusters. Specifically, Table 2 below describes the composition of each cluster with the most relevant terms.

Table 2. Clusters and Items

Clusters	Cluster Composition
1	Auditing, bank, big data, digital era, digital platform, financial services, financial technology, value creation, wealth management, work
2	Accountability, blockchain, digital transformation, financial control, financial manager, governance, government, information system, management accounting, organization, performance, principle, public sector, reporting
3	Accounting firm, accounting profession, article intelligence, automation, digital accounting, digital economy, efficiency, planning, quality
4	Adoption, country, COVID, creation, digital innovation, evolution, firm performance, knowledge, pandemic, smes, success
5	Digital age, finance, financial accounting, financial inclusion, management accounting
6	Accounting information, financial performance, strategy

Source: Database Analysis with VOSViewer, 2024

After successfully identifying the classification of existing literature, further analysis was continued using the Overlay Visualization feature in the VOSViewer application. This feature can identify research trends from 2017 to 2021 referring to the timeline bar in Figure 2 below.

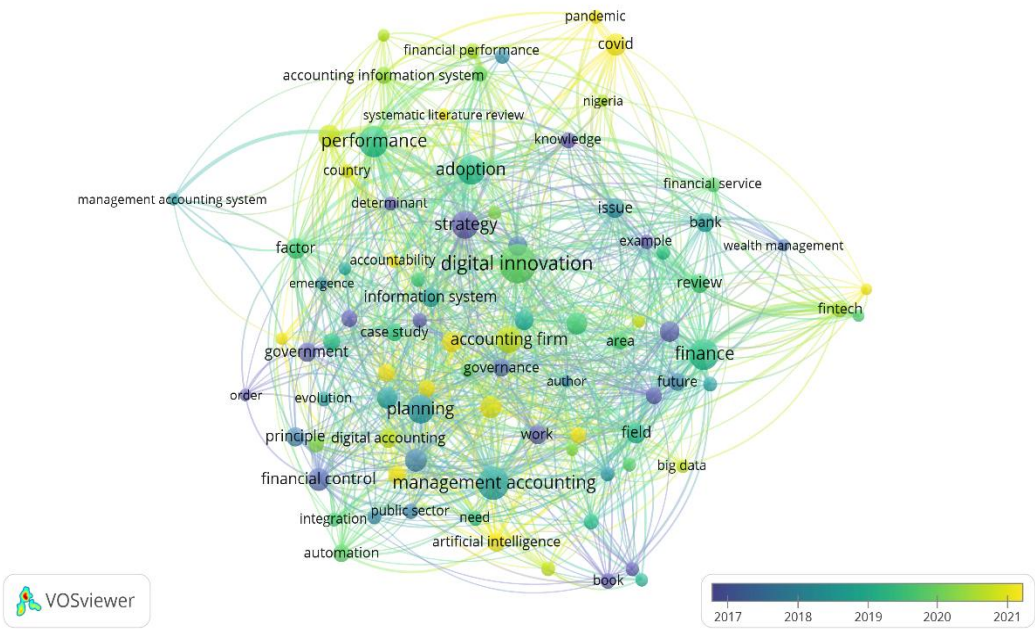


Figure 2. Overlay Visualization

From Figure 2 above, we can conclude that terms such as strategy, government, and financial control have a dark color (purple), indicating that these terms became a research trend around 2017 to 2018. Meanwhile, terms such as performance, digital innovation, automation, and management accounting emerged and became a trend from 2019 to 2020. Terms such as pandemic, COVID-19, big data, and artificial intelligence are terms that became research

These research trends can also be examined by identifying key literature or the most impactful literature in this field. The indicator of the impact of existing literature is by identifying the number of citations so that it can be said that the article with the highest number of citations is the article with the most impact on scientific development in the field of digital innovation in accounting and finance. Table 3 below describes the 10 studies with the highest number of citations spread across various journals and scientific article databases.

Citations	Author and Year	Title
13911	J Tidd, JR Bessant	Managing innovation: integrating technological, market, and organizational change
12231	TH Davenport	Process innovation: reengineering work through information technology
9117	KE Sveiby	The new organizational wealth: Managing & measuring knowledge-based assets
6356	EF Brigham	Financial management: Theory and practice
5724	RL Daft	Management
4829	G Vial	Understanding digital transformation: A review and a research agenda
4254	KC Laudon, JP Laudon	Management information system
3905	H Mintzberg	The strategy concept I: Five Ps for strategy
3664	P Dunleavy, H Margetts, S Bastow, ...	New public management is dead—long live digital-era governance
3651	Y Yoo, O Henfridsson, ...	Research commentary—the new organizing logic of digital innovation: an agenda for information systems research

The table above presents a summary of some of the significant scholarly works in the domain of artificial intelligence and its impact on the business world. A study entitled "Managing innovation: integrating technological, market and organizational change" by J Tidd, and JR Bessant (2020) stands out with 13911 citations, while other research, such as "Process innovation: reengineering work through information technology" by TH Davenport (1993) and "The new organizational wealth: Managing & measuring knowledge-based assets" by KE Sveiby (1997), also make important contributions with a significant number of citations.

1363

Source: Database Analysis with VOSViewer, 2024

Based on Figure 3 above, it is found that terms such as digital innovation, planning, finance, and performance have a fairly high light intensity compared to other terms. This indicates that these terms are very often used by previous research and have the potential to have high saturation so it is not recommended to be used in future research. While terms such as management accounting system, wealth management, big data, and accounting information system have a dim light intensity indicating that the term is still not frequently used it has the potential to be an interesting topic to research in the future.

Table 4 below identified the terms with the most frequent occurrences and the terms with the least frequent occurrences that were successfully analyzed automatically through the VOS Viewer application.

Table 4. Most and Least Frequent Terms

Most Occurrences		Least Occurrences	
Terms	Number of Occurrences	Terms	Number of Occurrences
Digital Innovation	108	Financial technology	10
Management Accounting	77	Firm performance	11
Finance	70	Wealth management	11
Performance	68	Digital platform	11
Adoption	62	Financial inclusion	12
Planning	58	Management accounting system	12
Strategy	56	Digital transformation process	12

Source: Database Analysis with VOSViewer, 2024

Based on Table 5 above, the term "Digital Innovation" appears the most with 108 occurrences, underscoring its significance in the context of the research. In contrast, the terms "Financial technology," "Firm performance," "Wealth management," and "Digital platform" appear the least with 10 to 11 occurrences of each, indicating that the focus of the research is more limited to financial aspects and firm performance. The terms such as "Financial inclusion," "Management accounting system," and "Digital transformation process" also had slightly higher occurrences, but were still in the range of 11 to 12 times.

Finally, to find out how collaborations were established among the authors, network building was used based on the bibliographic data of each article in the database we collected. Some authors are cooperating and collaborating while other authors are still individually conducting their research. Figure 4 below shows the groups of individual authors and those who have established collaborations.

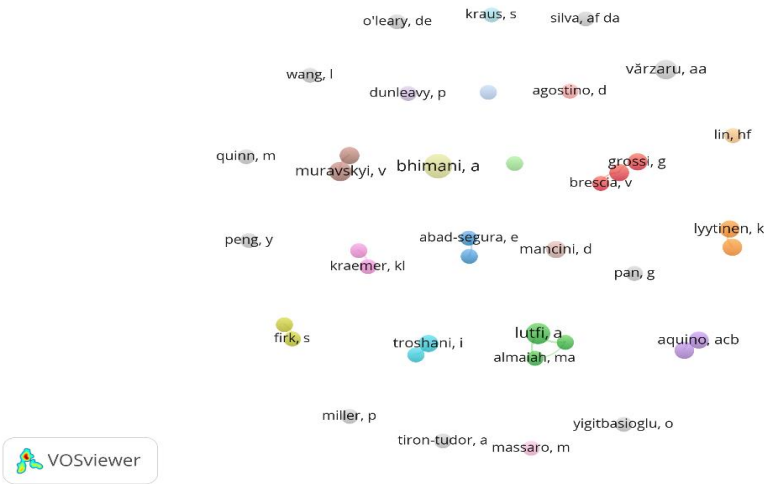


Figure 4. Visualization of the Authors' Network

Source: Database Analysis with VOS Viewer, 2024

Figure 4 above shows that there were nine groups of authors who had conducted collaborative research while 21 other groups were still individual. This identification is important to find key authors as well as to collaborate with individual authors. This is done with the aim of enriching the discussion and perspectives of research that will later be conducted or published.

Comparison with other Bibliometric Research

The topic concerning bibliometric analysis of accounting and finance digital innovations has been conducted by several researchers in the past. These studies addressed the use of bibliometric analysis to understand research trends, the interdisciplinary nature of research, and the growing importance of digital financial services. The studies cover a wide range of topics, including financial innovation, digital transformation in financial services, and the impact of digital technologies on accounting and finance. These studies include those conducted by (Afjal, 2023; Brika, 2022; B. Li & Xu, 2022; Thottoli et al., 2023; Thursina, 2023). Meanwhile, this article specifically highlights the renewal of accounting practices and financial management of organizations that have not been previously reached by the above studies so that this research can complement and enrich the literature on this topic.

Conclusion

In this study, the bibliometric analysis was conducted to explore digital innovations in the renewal of accounting practices and financial management of organizations. The main findings involve the identification of theme clusters, research trends from year to year, key literature with the highest number of citations, as well as potential future research topics. The theme cluster analysis revealed six main groups, covering aspects such as auditing, big data, digital finance, and digital transformation. The research trends showed a shift in focus from strategic issues such as strategy and governance at the beginning of the research period to an emphasis on issues responsive to recent developments such as the pandemic, artificial intelligence, and big data in more recent years. The articles with the highest number of citations highlighted the key role of artificial intelligence, robotics, and digital transformation in the business world. In addition, the identification of the most and least used terms opens up the potential to explore under-researched topics. Author collaborations, as depicted in the network visualization, provide an overview of the relationships between researchers in the development of this literature.

Implication

The results of this research have impact across a wide range of aspects. First, it provides an in-depth understanding of digital innovations in accounting practices and financial management of organizations. This provides a basis for professionals to develop insights into the influence of technologies such as big data, artificial intelligence, and cloud technology in accounting. Second, it guides further research, helping researchers identify trends and future research contributions. Third, its contribution to the development of accounting theory and practice includes aspects of technology, regulation, ethics, and information security. Fourth, the results of this research can help accounting practitioners adjust to the development of digital innovation, affecting the way financial statements are prepared, risk management is implemented, and decisions are made at the organizational level. Fifth, it motivates interdisciplinary collaboration between researchers in accounting, information technology, and financial management. Sixth, its relevance can be applied both globally and locally, helping organizations and practitioners in different countries to understand the adoption of digital innovations according to local needs. Seventh, it can contribute to the development of education and training curricula for accounting professionals, ensuring that future generations have relevant knowledge and skills. Eighth, being aware of the impact of digital innovation on information security, encourages organizations to improve data security policies and practices. Ninth, opening up space for public policy discussions that support innovation in accounting and financial management. Tenth, it provides a basis for organizations to evaluate their readiness to adopt new technologies and adjust implementation strategies accordingly.

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