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The Impact of Digital Technologies on Accounting Research: A Bibliometric Analysis

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Abstract

This study provides a bibliometric analysis of digital technologies in accounting research, using the SCOPUS database and VOSviewer tool to examine over 1,000 publications from 2015 to 2024. Our findings indicate a significant increase in publications over the past decade, reflecting growing interest and recognition of the importance of digital technologies in transforming accounting practices. Key contributors identified revealed a diverse geographical distribution from prominent countries such as the United States, the United Kingdom, and China, which have played crucial roles in advancing the field. Co-citation patterns further emphasize the influential contributions from these countries, showcasing their significant impact on shaping the direction of research and thought leadership in this area. Keyword analysis uncovers common terms such as "digitalization," "blockchain," and "artificial intelligence," indicating evolving trends and emerging topics within the field. This study offers valuable insights into research trends, key contributors, and thematic connections in digital technologies and accounting research. It outlines how digital innovations are reshaping accounting practices and suggests potential directions for future research. Expanding the scope to include additional databases and languages, and exploring qualitative aspects through case studies, could further enhance understanding. Additionally, investigating the intersection of digital technologies with areas such as sustainability and regulatory compliance may open new avenues for research and contribute to the field's ongoing development.

Keywords

Digital Technologies, Accounting Research, Bibliometric Analysis, Blockchain, Artificial Intelligence

1.0 Introduction

The rapid advancement of digital technologies has profoundly transformed various fields, including accounting. Technologies such as blockchain, artificial intelligence, big data, and cloud computing have not only altered the traditional practices within the accounting profession but have also influenced the scope and direction of academic research in this field. As accounting evolves to integrate these innovations, understanding the impact of digital technologies on accounting research becomes crucial.

In recent years, there has been a notable increase in publications related to digital technologies in accounting. This surge reflects the growing recognition of how these technologies can enhance efficiency, accuracy, and decision-making processes within the profession. For instance, big data analytics (BDA) has become crucial in modern accounting, enabling the analysis of large datasets to improve financial analyses and decision-making processes. This capability allows for advanced insights into financial trends, which greatly enhance the precision of financial reporting and risk assessment (Varma et al., 2021; Aguiar & Gouveia, 2020). Blockchain technology is seen as a potential game-changer in areas such as auditing and financial reporting, offering greater transparency and security (Dai & Vasarhelyi, 2017). Similarly, artificial intelligence and machine learning are being increasingly utilized to automate routine tasks, allowing

accountants to focus on more complex and strategic activities (Savić & Pavlović, 2023). Additionally, fintech innovations, such as cloud computing, have transformed accounting practices by improving transparency and decision-making processes, particularly in sustainability accounting and reporting (Vărzaru, 2022; Petcu et al., 2024). These digital tools collectively highlight the significant and practical benefits they bring to the accounting profession.

This study provides a significant contribution to the field of accounting by delivering a comprehensive bibliometric analysis of the impact of digital technologies on accounting research. It maps out research trends, identifies key contributors, and highlights influential publications, revealing how technologies have reshaped accounting practices and methodologies. By addressing shifts in research focus and methodological advancements driven by digital innovations, the study offers actionable insights for practitioners and researchers, underscores the importance of adapting to technological changes, and highlights future research directions.

This paper aims to address several key research questions to provide a comprehensive understanding of the current landscape of digital technologies and accounting research:

- a) What are the trends in research activity related to digital technologies and accounting over the past decade?
- b) Which countries are at the forefront of research output in digital technologies and accounting?
- c) How do co-occurrence patterns in digital technologies and accounting research reveal significant key themes, concepts, and how do these themes interrelate?
- d) How do co-citation patterns in digital technologies and accounting research reveal key papers, collaborative research networks, and thematic connections?

The paper is structured as follows: Section 2 reviews existing literature on digital technologies in accounting, focusing on trends, methods, and research gaps. Section 3 explains the research methodology, including the bibliometric tools and techniques used. Section 4 presents the findings from the bibliometric analysis, highlighting important trends and contributions in the field. Finally, Section 5 summarizes the results, draws conclusions about the impact of digital technologies on accounting research, and suggests future research directions and practical applications.

2.0 Literature Review

The integration of digital technologies into accounting has been a focal point of research in recent years, reflecting the transformative impact of these innovations on the field. As businesses increasingly adopt digital tools to enhance their operations, accounting practices have evolved to meet new demands for accuracy, efficiency, and transparency.

Big Data Analytics (BDA) has revolutionized accounting research by enhancing the ability to analyze large volumes of data, leading to more insightful and accurate financial analyses. Aguiar and Gouveia (2020) highlight that incorporating big data into accounting research has enhanced decision-making and risk assessment. Mancini, Lombardi, and Tavana (2021) further emphasize that big data has significantly improved forecasting and risk management, demonstrating its strong impact on accounting practices. This transformation is further supported by Moll and Yigitbasioglu (2019), who note that internet-related

technologies, including big data, are reshaping accounting practices by providing more detailed and comprehensive data analysis.

Another most discussed technologies in this domain is blockchain. Blockchain technology is recognized for its potential to revolutionize accounting by offering a decentralized, immutable ledger system, which enhances the accuracy and reliability of financial records (Dai & Vasarhelyi, 2017). The transparent nature of blockchain reduces the risk of fraud and error, making it a valuable tool for auditing and financial reporting (Alles, 2015). Gonçalves et al. (2022) further explore the transformative potential of blockchain in accounting, particularly in transaction verification and auditing, showcasing its broad implications for the accounting profession.

Meanwhile, Artificial Intelligence (AI) has made substantial contributions to automating routine accounting tasks, such as data entry and reconciliation, thus allowing accountants to focus on strategic decision-making and higher-level analysis (Savić & Pavlović, 2023). Sabuncu (2022) examines the impact of AI on the accounting profession, noting enhancements in efficiency and accuracy. The use of AI in predictive analytics also enables accountants to provide more insightful financial forecasts and risk assessments (Tang & Karim, 2017).

Furthermore, Fintech innovations, such as cloud computing has also had a profound impact on accounting practices. Vărzaru (2022) presents a framework for assessing the effects of fintech on sustainability accounting and reporting, emphasizing its role in improving the robustness of reporting mechanisms. Petcu et al. (2024) discuss the integration of digital technologies in sustainability accounting, emphasizing the impact of fintech on modern accounting practices.

Despite the progress made, there are ongoing research gaps and areas for future exploration. Issues such as data security, the need for skilled professionals, and the cost of implementation are frequently cited as barriers (Schmidt & Cohen, 2015). Moreover, the rapid pace of technological change presents a challenge for regulatory bodies, which must ensure that new practices comply with existing standards (O'Leary, 2018).

In conclusion, the literature suggests that digital technologies are fundamentally reshaping the landscape of accounting practice, thus led to substantial advancements and presents new research opportunities. As these technologies continue to evolve, ongoing research will be essential to fully understand their implications and to develop best practices for their integration into accounting systems.

3.0 Research Methodology

The data for this bibliometric analysis was obtained from the SCOPUS database, renowned for its comprehensive indexing of peer-reviewed literature across diverse disciplines. Publications from 2015 to 2024, including articles, reviews, and conference papers, were selected based on their focus on Digital Technologies in Accounting Research. Keywords such as "Digital Technologies," "Accounting Research," and "Technologies in Accounting" were employed, with only English-language documents included to ensure consistency. VOSviewer was utilized to construct and visualize bibliometric networks, including co-authorship, co-citation, and keyword co-occurrence networks (Van Eck & Waltman, 2010). Its

capability to manage large datasets and create detailed graphical representations made it an ideal tool for identifying patterns and trends in the research.

Data extraction from SCOPUS initially yielded over a thousand publications related to Digital Technologies in Accounting Research. A rigorous cleaning and harmonization process was then applied. First, duplicate records were identified and removed to prevent bias in the analysis. Subsequently, titles, abstracts, and keywords of the remaining documents were meticulously reviewed to exclude unrelated papers, non-peer-reviewed publications, and those not directly addressing the themes of Digital Technologies and Accounting Research (Hassan et al., 2023). Additionally, bibliographic data, including author names, affiliations, and keywords, were standardized to correct variations in spelling, abbreviations, and formatting. The refined dataset resulting in a final of 1,023 documents. The search string employed was:

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( TITLE-ABS-KEY ( digital ) AND ( technologies ) AND ( accounting ) AND ( research ) ) AND  
PUBYEAR > 2014 AND PUBYEAR < 2025 AND ( LIMIT-TO ( SRCTYPE , "j" ) ) AND ( LIMIT-TO ( PUBSTAGE , "final" ) ) AND ( LIMIT-TO ( SUBJAREA , "SOCI" ) OR LIMIT-TO ( SUBJAREA , "BUSI" ) ) AND ( LIMIT-TO ( DOCTYPE , "ar" ) ) AND ( LIMIT-TO ( LANGUAGE , "English" ) ) AND ( LIMIT-TO ( EXACTKEYWORD , "Blockchain" ) OR LIMIT-TO ( EXACTKEYWORD , "Artificial Intelligence" ) OR LIMIT-TO ( EXACTKEYWORD , "Big Data" ) OR LIMIT-TO ( EXACTKEYWORD , "Machine Learning" ) OR LIMIT-TO ( EXACTKEYWORD , "Digitalization" ) OR LIMIT-TO ( EXACTKEYWORD , "Block-chain" ) OR LIMIT-TO ( EXACTKEYWORD , "Big Data Analytics" ) OR LIMIT-TO ( EXACTKEYWORD , "Fintech" ) OR LIMIT-TO ( EXACTKEYWORD , "Technology Adoption" ) OR LIMIT-TO ( EXACTKEYWORD , "IoT" ) OR LIMIT-TO ( EXACTKEYWORD , "Metadata" ) ) ( TITLE-ABS-KEY ( big AND data AND analytics ) AND ALL ( accounting AND information AND system ) ) AND ( LIMIT-TO ( SUBJAREA , "COMP" ) OR LIMIT-TO ( SUBJAREA , "BUSI" ) OR LIMIT-TO ( SUBJAREA , "ENGI" ) OR LIMIT-TO ( SUBJAREA , "DECI" ) OR LIMIT-TO ( SUBJAREA , "SOCI" ) OR LIMIT-TO ( SUBJAREA , "ECON" ) OR LIMIT-TO ( SUBJAREA , "MATH" ) ) AND ( LIMIT-TO ( DOCTYPE , "ar" ) OR LIMIT-TO ( DOCTYPE , "cp" ) OR LIMIT-TO ( DOCTYPE , "ch" ) OR LIMIT-TO ( DOCTYPE , "re" ) ) AND ( LIMIT-TO ( LANGUAGE , "English" ) ) ).
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4.0 Results and Discussion

This section presents the results of a bibliometric analysis focusing on the intersection of Digital Technologies and Accounting Research. The analysis encompasses trends in publication by year, geographic distribution of research, co-citations, and keyword co-occurrence. These elements collectively provide a comprehensive view of how digital technologies are influencing accounting research. The results reveal a marked increase in research activity over recent years, with a significant rise in publications. Prominent research themes in this field are identified, such as data integration, technological methodologies, and enhancements in accounting system performance. The study also uncovers major contributions and thematic clusters, identifying gaps within the existing literature. These insights are critical for understanding the dynamic landscape of digital technologies in accounting research and lay a strong foundation for future studies aimed at advancing both theoretical knowledge and practical applications in accounting and finance.

4.1 Documents by Year

In bibliometric analysis, Documents by Year tracks the annual volume of scholarly publications within a specific research domain. This metric provides insights into temporal trends, shifts in scholarly focus, and variations in research activity over time. Analyzing this data helps researchers discern the evolution of the field, identify emerging trends, and highlight research gaps, offering a comprehensive view of the development and progression of academic interest within the area of study.

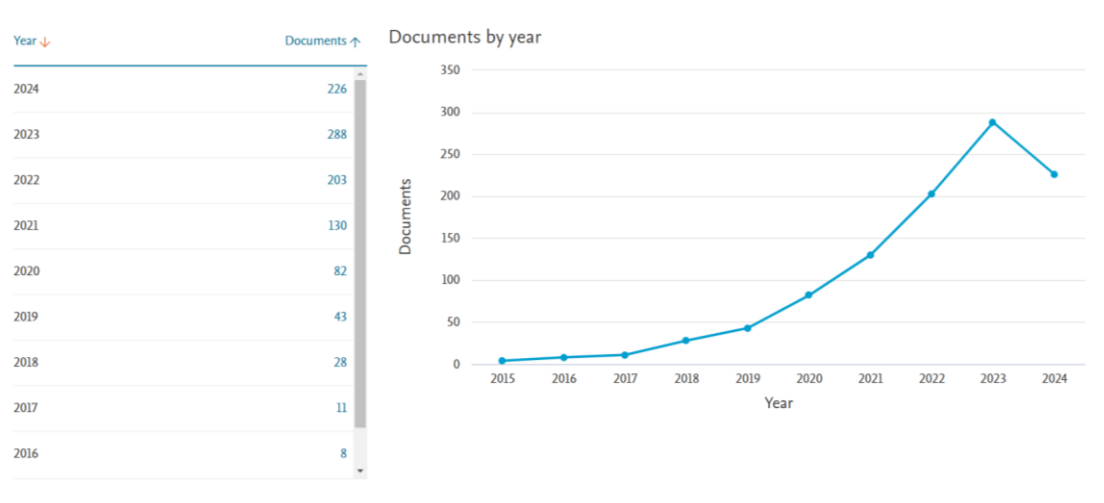


Figure 1: Documents by Year
Source: Scopus

The analysis of documents by year in digital technologies and accounting research reveals a significant upward trend over the past decade. Figure 1 illustrates the annual distribution of research documents over the past decade. The data reveals a marked upward trend, beginning with modest numbers in 2015 and 2016, with only 4 and 8 documents respectively. A gradual increase is observed in 2017 (11 documents) and 2018 (28 documents), followed by a more significant rise in 2019 (43 documents). The year 2020 marks a notable surge, with 82 documents, nearly doubling in 2021 with 130 documents. This trend continues to accelerate in 2022, reaching 203 documents, and peaks in 2023 with 288 documents. Although there is a slight decrease in 2024, with 226 documents, the overall pattern indicates a robust and growing scholarly interest in the intersection of digital technologies and accounting research, reflecting the increasing importance of this field in the academic community.

4.2 Documents by Country

Documents by Country refers to the distribution of scholarly publications based on the countries where the research was conducted or where the authors are based. This metric helps identify which countries are leading in research output within a specific field, showcasing their contributions and level of engagement. By analyzing documents by country, researchers can understand global research patterns, assess international collaboration, and evaluate the relative prominence of different countries in advancing knowledge on a particular topic.

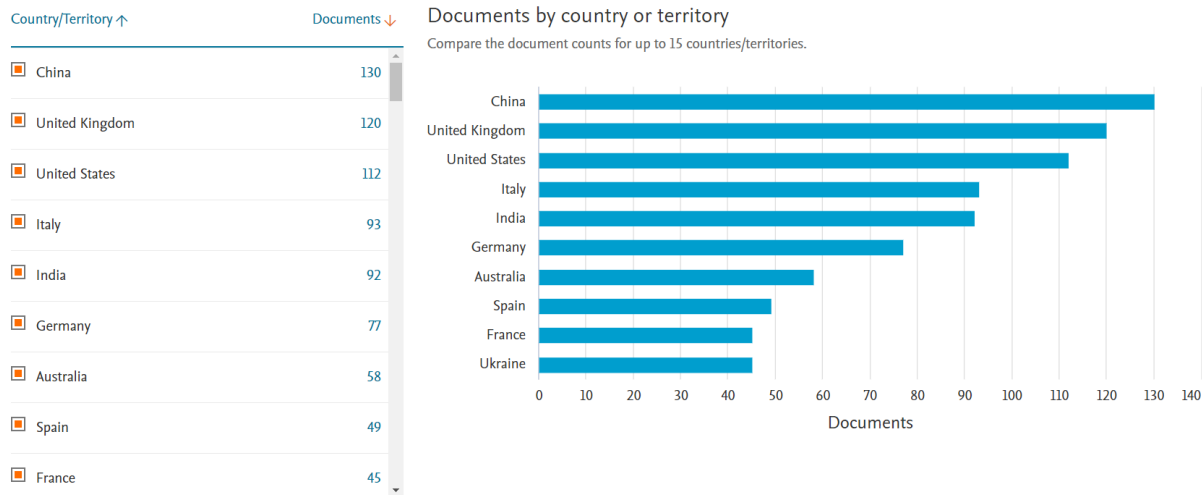


Figure 2: Documents by Country
Source: Scopus

The distribution of research documents by country in this study reveals a diverse and globally engaged scholarly community. Figure 2 demonstrates that China emerges as the leading contributor with 130 publications, closely followed by the United Kingdom (120) and the United States (112), highlighting these nations as key drivers of innovation in this field. Italy and India also make substantial contributions, with 93 and 92 documents respectively, reflecting their growing influence in digital accounting research. Germany (77), Australia (58), Spain (49), France (45), and Ukraine (45) further demonstrate the widespread international collaboration and interest in integrating digital technologies into accounting practices. This global distribution underscores the broadening impact and critical importance of digital technologies in shaping contemporary accounting research across different regions.

4.3 Co-occurrence

Co-occurrence in bibliometric analysis refers to the simultaneous appearance of specific keywords within research documents. It reveals patterns and key areas of focus by showing how often certain terms are used together. This analysis helps identify research trends, thematic clusters, and the relationships between concepts, providing insights into the structure and evolution of academic discourse.

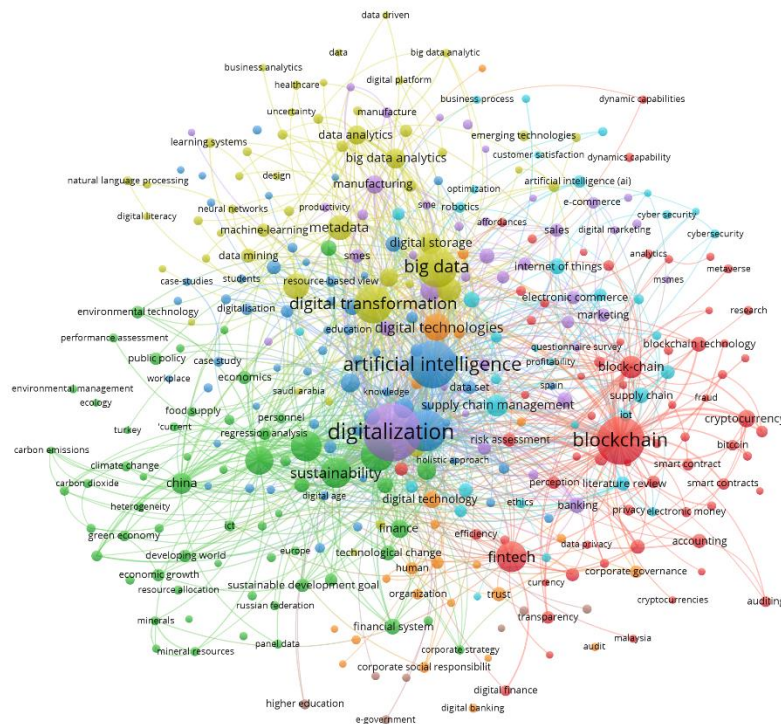


Figure 3: Co-occurrence
Source: Scopus

Figure 3 illustrates the co-occurrence of key terms in the bibliometric analysis of research on digital technologies and accounting. The term "digitalization" leads with 290 occurrences and 924 citations, underscoring its central role in the field. It is closely followed by "blockchain" and "artificial intelligence", with 195 and 188 occurrences respectively, reflecting their significant impact and growing importance in the literature. "Technology adoption" and "big data" are also prominent, each with high citation counts (924 and 629, respectively), highlighting their relevance in the study of digital technologies' integration into accounting practices. "Digital transformation" (127 occurrences) and "innovation" (93 occurrences) further indicate key areas of focus, while "sustainability" and "digitization" reflect emerging themes. "Fintech", with fewer occurrences and citations, suggests a more specialized but relevant aspect of digital technology in accounting research. This co-occurrence analysis reveals a diverse yet interconnected landscape, emphasizing the multifaceted impact of digital technologies on accounting research.

4.4 Co-citation by country

Co-citation by country involves analyzing how frequently research documents from different countries are cited together by other works. This method reveals the extent of collaborative research networks and identifies which countries contribute significantly to a field. By examining co-citation patterns, researchers can understand global influence, thematic clusters, and regional strengths, providing insights into how different countries impact and shape academic discourse in a specific area.

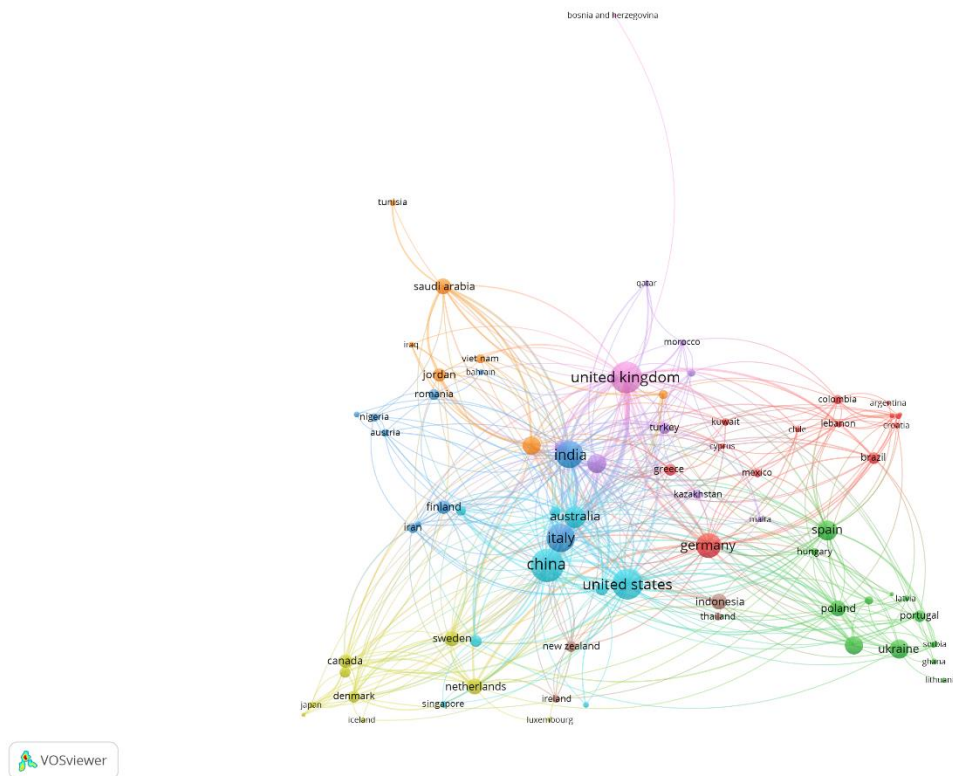


Figure 4: Co-citation by country
Source: Scopus

Figure 4 presents the co-citation analysis by country for research on digital technologies and accounting. The United States stands out with the highest total co-citations (7,002), reflecting its substantial impact and central role in the field. The United Kingdom follows with 5,022 co-citations, indicating a strong scholarly influence. China and India, with 3,236 and 2,571 co-citations respectively, highlight their growing prominence and active contribution to the research landscape. Italy, Germany, and Australia exhibit significant engagement with 2,402, 1,948, and 2,070 co-citations, respectively, showcasing their important roles in advancing knowledge. Spain and France, with 1,319 and 2,211 co-citations, also contribute meaningfully, though at a lower intensity compared to the leading countries. Ukraine, despite having a lower number of co-citations (246), is noted for its involvement. This synthesis underscores the global distribution of research impact and highlights the varying degrees of academic influence exerted by different countries in the domain of digital technologies and accounting research.

5.0 Conclusion

The bibliometric analysis of digital technologies and accounting research reveals a significant upward trend in scholarly activity over the past decade. As illustrated in Figure 1, research output has steadily increased from 2015 to a peak in 2023, reflecting the growing importance of integrating digital technologies into accounting practices. This surge in publications indicates a robust and expanding interest in the field, highlighting the evolving nature of digital technologies and their impact on accounting.

International contributions to the field are detailed in Figure 2, showcasing the concentration of research among key countries including the United States, the United Kingdom, and China. This distribution underscores the global and collaborative nature of the research landscape. Figure 3 highlights patterns and key areas of focus by illustrating the frequency of term co-occurrences, with "digitalization," "blockchain," and "artificial intelligence" emerging as the most prominent. The co-citation analysis presented in Figure 4 further illustrates the influential role of those countries in advancing the field, reflecting varying degrees of academic influence and contributions to the research discourse.

While this bibliometric analysis provides valuable insights into the trends and impact of digital technologies on accounting research, several limitations must be acknowledged. First, the scope of the study is constrained by the databases and search terms used, potentially excluding relevant research from other sources or emerging fields. Additionally, the analysis relies on citation counts and keyword co-occurrences, which may not fully capture the nuanced influence of specific studies or the qualitative aspects of their contributions. The variation in publication practices and citation behaviors across different disciplines and regions may also affect the generalizability of the findings. Furthermore, the data does not account for the impact of non-English language publications or the influence of recent developments in digital technologies that may not yet be fully represented in the existing literature.

Future research in this domain could benefit from a more comprehensive examination of emerging technologies and their implications for accounting practices. Expanding the scope to include additional databases and incorporating non-English language publications could provide a more inclusive view of global research trends. Longitudinal studies that track the impact of specific technological advancements over time could offer deeper insights into their evolving influence. Additionally, exploring qualitative aspects through case studies or interviews with key researchers could complement the quantitative findings and provide a richer understanding of the dynamics within the field. Investigating the intersection of digital technologies with other areas of accounting, such as sustainability and regulatory compliance, could also reveal new opportunities for research and innovation.

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Tarikh : 20 Januari 2023

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Saya yang menjalankan amanah,

Setuju.

27.1.2023

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