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Trends and Insights in Big Data Analytics for Accounting Information Systems: A Bibliometric Analysis

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Abstract

This study provides a detailed bibliometric analysis of research on Big Data Analytics in Accounting Information Systems (AIS), utilizing the SCOPUS database and VOSviewer tool to analyze over 1,000 publications from 2012 to 2024. The analysis highlights key trends, including publication growth, influential authors and institutions, and major research themes. Significant findings include the rapid increase in research activity, with notable contributions from the University of Wollongong and Montpellier Business School, and leading countries such as the United States, United Kingdom, and India. Prominent researchers like Angappa Gunasekaran and Rameshwar Dubey have made substantial impacts on the field. The study reveals core themes through keyword co-occurrence, with "Big Data," "Data Analytics," and "Big Data Analytics" being central topics. Co-citation analysis identifies pivotal publications that have shaped current research, offering insights into both foundational and emerging areas. However, the study has limitations, including reliance on specific databases, potential biases due to the focus on English-language publications, and issues with citation data accuracy. Future research could address these limitations by broadening database coverage, incorporating non-English literature, and applying advanced bibliometric methods. Additionally, exploring the practical applications of big data technologies in AIS and conducting longitudinal studies could provide deeper insights into their impact. This analysis serves as a valuable resource for academics and practitioners, offering guidance for future research and development in integrating big data analytics with accounting information systems.

Keywords

Big Data Analytics, Accounting Information System (AIS), Bibliometric Analysis, Research Trends, Publication Patterns

1.0 Introduction

The advent of Big Data Analytics has revolutionized various fields, including accounting and finance, by enabling the processing and analysis of vast amounts of data to extract valuable insights. In the context of Accounting Information Systems (AIS), Big Data Analytics has introduced significant improvements in the accuracy, efficiency, and comprehensiveness of financial reporting and decision-making processes (Warren, Moffitt, & Byrnes, 2015). AIS, which traditionally relied on structured data from internal sources, now integrates unstructured data from diverse sources, such as social media, market trends, and economic indicators, to provide a holistic view of an organization's financial health (Cao, Chychyla, & Stewart, 2015). This integration not only enhances the predictive capabilities of AIS but also supports the identification of patterns and anomalies that could indicate financial risks or opportunities (Vasarhelyi, Kogan, & Tuttle, 2015).

The primary objective of this bibliometric analysis is to map the development, impact, and thematic trends in the research on Big Data Analytics within AIS. By systematically examining citation patterns, co-citations, keyword co-occurrence, co-authorship networks, and bibliographic coupling, this study aims to provide a comprehensive overview of the scholarly output in this domain. This analysis will highlight influential authors and institutions, identify key research themes, and uncover emerging trends, thereby offering a detailed understanding of the academic landscape.

Understanding the trends and insights in Big Data Analytics for AIS is crucial for several reasons. Firstly, it enables researchers to identify gaps in the current literature and propose new directions for future research. Secondly, it assists practitioners in adopting best practices and innovative approaches to enhance their accounting systems. Lastly, it contributes to the broader discourse on the role of advanced analytics in improving organizational performance and governance. By shedding light on the evolution and impact of Big Data Analytics in AIS, this study provides a valuable foundation for advancing both academic research and practical applications in the field (Chen, Chiang, & Storey, 2012).

In the early stages of Accounting Information Systems (AIS), the focus was on basic data processing using mainframe computers. These systems managed routine tasks such as payroll, accounts payable, and accounts receivable through flat files or simple databases (Georgakopoulos, 1996). The introduction of relational databases in the 1970s, exemplified by IBM's DB2 and Oracle, represented a significant advancement, providing more sophisticated data management and querying capabilities (Codd, 1970). These databases improved the efficiency of financial reporting and record-keeping but handled relatively small volumes and types of data compared to modern standards.

The 1980s and 1990s saw the development of data warehousing, a significant step forward in managing and analyzing financial data (Inmon, 1996). Data warehouses centralized data from various sources into a single repository, making analysis and reporting easier and facilitating historical data analysis and trend identification. This period also marked the rise of Business Intelligence (BI) tools, which offered advanced reporting, data visualization, and ad-hoc query capabilities (Eckerson, 2005). These tools enabled more detailed financial analysis and improved decision-making, setting the stage for more complex analytics in subsequent years.

The early 2000s brought the advent of big data technologies, driven by the rapid growth of data volume, variety, and velocity from sources such as the internet and social media (Gartner, 2012). Technologies like Hadoop and Apache Spark emerged to handle and process large datasets, including unstructured data (Dean & Ghemawat, 2008). During this era, advanced analytics began to be integrated into AIS, incorporating predictive modeling, machine learning, and artificial intelligence (AI) (Davenport & Harris, 2007). These advancements enabled sophisticated analysis of financial data, such as risk assessments and anomaly detection, significantly enhancing AIS capabilities.

The 2010s saw the rise of cloud computing, which revolutionized AIS by providing scalable storage and processing power (Marston, Li, Bandyopadhyay, Zhang, & Ghalsasi, 2011). Cloud-based platforms like AWS, Azure, and Google Cloud facilitated flexible data management and improved access to analytical tools, enabling real-time data processing. Modern AIS systems leverage automation for routine financial processes and real-time analytics for up-to-date insights, enhancing decision-making and efficiency (Chen,

Mao, & Liu, 2014). This integration has significantly improved the accuracy and timeliness of financial management.

Looking forward, AIS is expected to further evolve with advancements in technologies such as blockchain and the Internet of Things (IoT). Blockchain technology promises enhanced transparency and security in financial transactions (Catalini & Gans, 2016), while IoT can provide real-time operational data (Atzori, Iera, & Morabito, 2010). The continued development of AI and machine learning will refine predictive and prescriptive analytics, driving new innovations in financial management and shaping the future of AIS (Brynjolfsson & McElheran, 2016).

This paper seeks to address several key research questions to provide a thorough understanding of the current landscape of Big Data Analytics and Accounting Information Systems research:

a) What are the trends in research activity related to Big Data Analytics and Accounting Information Systems over the past decade?
b) Which institutions and countries are leading in research on Big Data Analytics and Accounting Information Systems, and how does their output contribute to the global discourse?
c) Which countries are at the forefront of research output in Big Data Analytics and Accounting Information Systems?
d) Who are the most influential researchers in the field of Big Data Analytics and Accounting Information Systems, and how has their work impacted the scholarly community?
e) What are the key themes and concepts in current research on Big Data Analytics and Accounting Information Systems, and how do these themes interrelate?
f) How do co-citation patterns in Big Data Analytics and Accounting Information Systems reveal key papers, influential authors, and thematic connections?

The remainder of the paper is organized as follows: Section 2 reviews the existing literature on Big Data Analytics within Accounting Information Systems (AIS), focusing on key trends, methodologies, and research gaps. Section 3 outlines the research methodology used in this study, including the bibliometric tools and techniques applied for data analysis. Section 4 presents and discusses the findings from the bibliometric analysis, highlighting significant patterns, trends, and influential contributions within the field. Finally, Section 5 summarizes the results, offers conclusions on the impact of Big Data Analytics on AIS, and provides insights into future research directions and practical applications for integrating big data technologies in accounting practices.

2.0 Literature Review

2.1 Big Data Analytics in Accounting Information Systems

The integration of Big Data Analytics (BDA) in Accounting Information Systems (AIS) has garnered significant attention in recent years, reflecting its transformative potential in the accounting domain. BDA refers to the use of advanced analytical techniques to process and analyze large volumes of data, uncovering patterns, correlations, and insights that are not evident with traditional data analysis methods (Cao, Chychyla, & Stewart, 2015). In AIS, BDA enables organizations to enhance their decision-making processes, improve financial reporting accuracy, and increase operational efficiency (Warren, Moffitt, & Byrnes, 2015). Researchers have highlighted that BDA in AIS supports predictive analytics, fraud detection, risk management, and compliance monitoring (Appelbaum, Kogan, Vasarhelyi, & Yan, 2017).

For instance, the integration of BDA allows auditors to analyze entire data populations rather than samples, thereby enhancing the reliability of audit outcomes (Alles & Gray, 2016).

Bibliometric analysis has been widely used to explore research trends, influential works, and collaboration patterns in various fields, including AIS and BDA. Bibliometric studies offer a systematic and quantitative approach to analyzing academic literature, providing insights into the development and impact of research areas (Chen, Chiang, & Storey, 2012). Previous bibliometric studies in AIS have focused on topics such as the adoption of emerging technologies, the evolution of auditing practices, and the impact of information systems on financial performance (Vasarhelyi, Kogan, & Tuttle, 2015). In the context of BDA, bibliometric analyses have mapped the research landscape, identified key contributors, and highlighted prevalent themes and trends (Thayyib et al. 2023). These studies have underscored the growing importance of BDA in AIS and the need for continued exploration of its applications and implications.

Big Data Analytics (BDA) has increasingly become integral to Accounting Information Systems (AIS), offering enhanced data processing capabilities, real-time analytics, and improved decision-making processes. The integration of BDA in AIS facilitates the handling of large volumes of complex data, enabling accountants and financial analysts to extract valuable insights for strategic planning and operational efficiency (Moffitt & Vasarhelyi, 2013; Liu & Vasarhelyi, 2014). Liu and Vasarhelyi (2014) highlight the critical role of BDA in transforming traditional AIS through advanced measurement, information processing, data analysis, and reporting mechanisms. This evolution has paved the way for a new paradigm in accounting, where real-time data analytics and automated systems significantly improve the accuracy and relevance of financial information (Minovski, Malcev, & Tocev, 2020; Bose, Dey, & Bhattacharjee, 2023).

The integration of cloud technology with BDA in AIS has further enhanced data accessibility and collaboration, promoting seamless data sharing across different organizational units (Dai, 2022). Nurhayati et al. (2023) emphasize that the quality of AIS is significantly influenced by BDA, which acts as a moderating factor in enhancing the conventional linkages between various AIS components. Additionally, the implementation of cybersecurity measures and user training has been identified as critical factors in optimizing the performance of AIS in start-up companies (Pratomo, 2023; Qatawneh, 2022).

Bibliometric analysis has emerged as a powerful tool to map the research landscape of AIS and BDA, providing insights into publication trends, influential authors, and emerging research themes. Previous studies have utilized bibliometric methods to explore the evolution and impact of research in this domain. For instance, İyibildiren, Eren, and Ceran (2023) conducted a bibliometric analysis on the Web of Science database to map the publications related to AIS, identifying key trends and research clusters. Similarly, Agustí and Orta-Pérez (2023) analyzed the intersection of big data and artificial intelligence in accounting and auditing, highlighting the significant contributions and thematic clusters within the field.

Other studies have focused on the specific impact of BDA on AIS, examining how these technologies have reshaped the research landscape. For example, Lidyah et al. (2023) conducted a bibliometric analysis to trace the evolution of AIS research, identifying influential authors and key concepts that have shaped the field. Maryanti (2024) analyzed the development of AIS research using bibliometric techniques, providing a comprehensive overview of the research trends and identifying gaps for future investigation. Anriva and

Hamidah (2024) explored publication trends in AIS within Indonesia, offering insights into the research positions and emerging themes in the region.

3.0 Research Methodology

The data for this bibliometric analysis was sourced from the SCOPUS database, known for its extensive indexing of peer-reviewed literature across various disciplines. Publications from 2012 to 2024, including articles, reviews, and conference papers, specifically addressing Big Data Analytics (BDA) in Accounting Information Systems (AIS), were selected. Keywords like "Big Data Analytics," "Accounting Information Systems," and "BDA in AIS" were used, with only English-language documents included to maintain consistency. VOSviewer was used for constructing and visualizing bibliometric networks, such as co-authorship, co-citation, and keyword co-occurrence networks (Van Eck & Waltman, 2010). Its ability to handle large datasets and generate detailed graphical representations makes it ideal for identifying research patterns and trends.

Data extraction from SCOPUS initially yielded over 1,500 publications related to BDA in AIS, which were then screened to ensure relevance, resulting in a final dataset of 1,432 documents. The search string employed was:

(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")).

This search initially produced a dataset of over a thousand documents. To ensure the relevance and quality of the data, a rigorous cleaning and harmonization process was implemented.

First, duplicate records were identified and removed to avoid any potential bias in the analysis. Next, the titles, abstracts, and keywords of the remaining documents were carefully reviewed to exclude unrelated papers, non-peer-reviewed publications, and those that did not directly address the themes of Big Data Analytics and Accounting Information Systems (Hassan et al., 2023). Additionally, bibliographic data, including author names, affiliations, and keywords, were standardized to address variations in spelling, abbreviations, and formatting. This step was essential for accurately mapping the scholarly landscape and ensuring that the analysis provided a true representation of the research field. This search initially yielded over a thousand documents. To ensure relevance, titles and abstracts were meticulously reviewed to exclude unrelated papers (Hassan et al., 2023). The final dataset, refined through this process, consists of 1,432 articles and reviews, spanning a period of 10 years from 2012 to 2024.

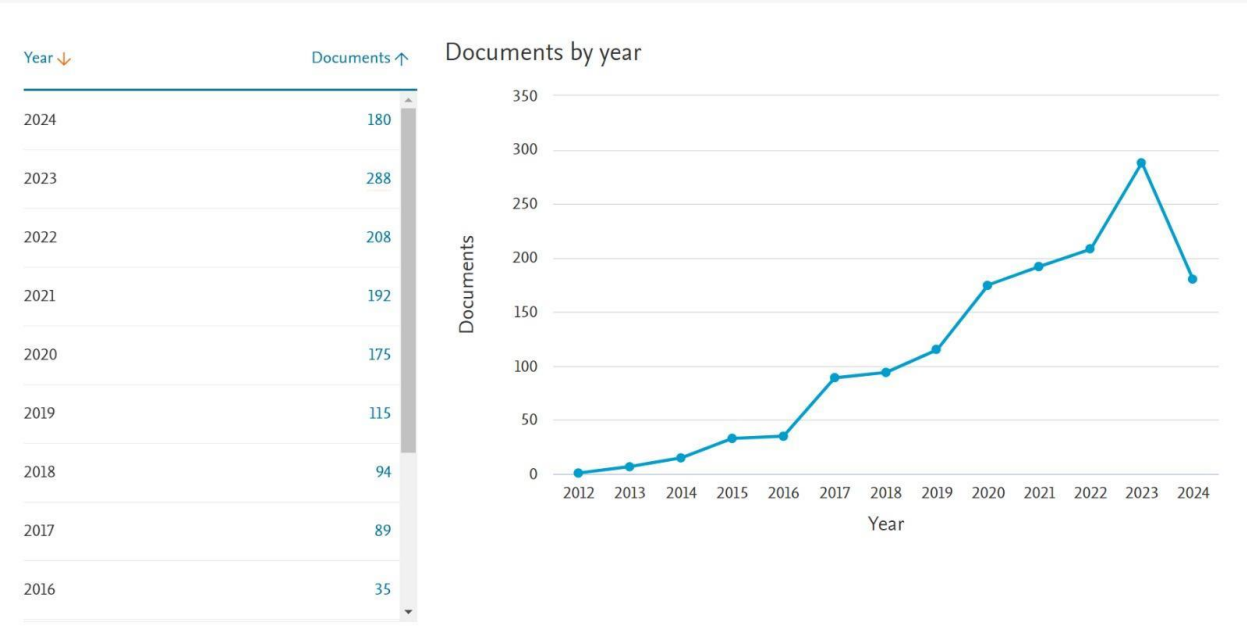
4.0 Results and Discussion

This section analyzes the results of this study, a bibliometric analysis focusing on the intersection of Big Data Analytics (BDA) and Accounting Information Systems (AIS). The analysis explores citation counts, co-citations, keyword co-occurrence, co-authorship networks, and bibliographic coupling to provide a

comprehensive view of how BDA influences AIS. The findings highlight significant trends in research activity, including a marked increase in publications over recent years. Leading authors and institutions are identified, alongside prominent research themes such as data integration, analytics methodologies, and system performance enhancements. The study also reveals major contributions and thematic clusters, uncovering gaps in the existing literature. These insights are crucial for understanding the evolving landscape of BDA in AIS and offer a solid foundation for future research, aiming to advance knowledge and drive practical applications in the field of accounting and finance.

4.1 Documents by Year

In bibliometric analysis, "Documents by Year" tracks the annual count of scholarly publications within a specific research area. This metric reveals trends, shifts in scholarly focus, and changes in research activity over time. By analyzing this data, researchers can gain insights into the evolution of a field, identify emerging trends, and pinpoint research gaps, thereby understanding the overall development of academic interest.



Year	Documents
2024	180
2023	288
2022	208
2021	192
2020	175
2019	115
2018	94
2017	89
2016	35

Figure 1: Documents by Year
Source: Scopus

The analysis of documents by year in the field of big data analytics and accounting information systems reveals a significant upward trend over the past decade. Starting with modest figures in 2015 and 2016, with only 33 and 35 documents respectively, the research output has seen a steady increase. This gradual rise is more pronounced from 2017 onwards, where the number of publications jumped to 89 documents. The subsequent years exhibit an even more substantial growth, reaching 94 documents in 2018 and 115 in 2019. This upward trajectory continues through 2020 and 2021, with 175 and 192 documents respectively, reflecting a growing interest and recognition of the relevance of this research area. The peak is observed in 2023, with an impressive 288 documents, highlighting an exponential growth in scholarly activity. Although there is a slight decrease in 2024 with 180 documents, the overall trend indicates a robust and

increasing engagement with the intersection of big data analytics and accounting information systems. This surge in research publications underscores the evolving importance of integrating advanced data analytics within accounting practices and the continuous expansion of knowledge in this interdisciplinary field.

4.2 Documents by Affiliation

Documents by Affiliation refers to the distribution of scholarly publications based on the institutions or organizations with which the authors are associated. This metric reveals which institutions are leading in research output within a particular field, highlighting their contribution and influence. By analyzing documents by affiliation, one can identify key research centers, assess institutional productivity, and understand the collaborative landscape of a field, providing insights into the academic and institutional impact on the research topic.

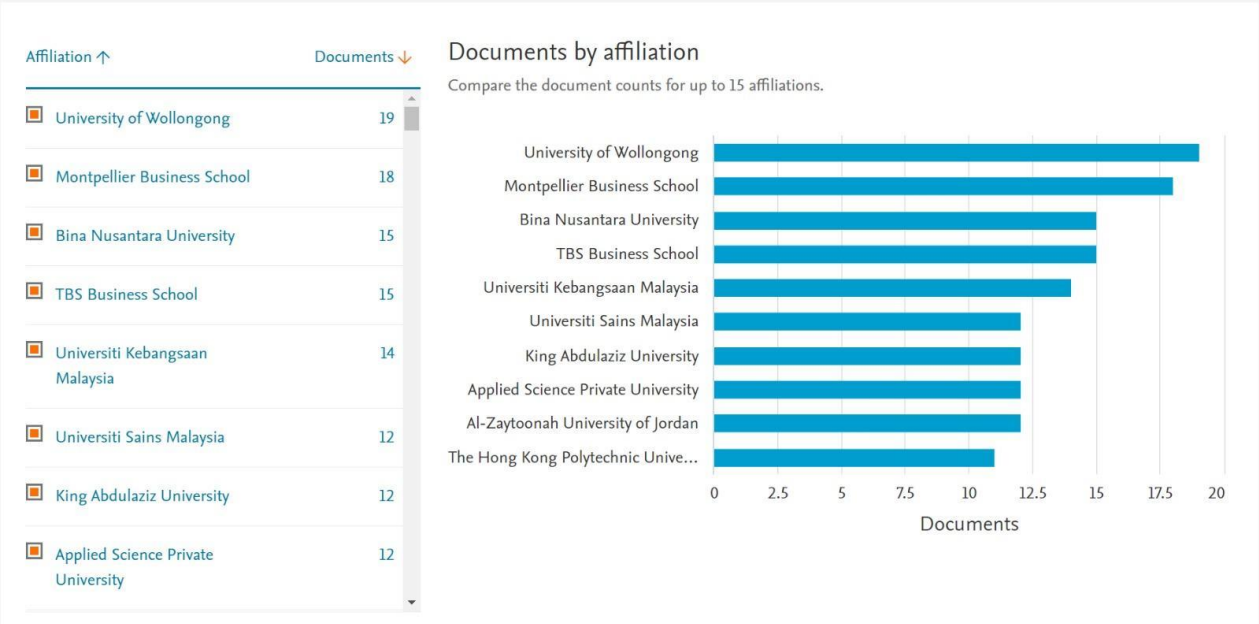


Figure 2: Documents by Affiliation
Source: Scopus

The "Affiliation by Year" analysis for bibliometric research on big data analytics and accounting information systems highlights the leading institutions contributing to this field. The University of Wollongong emerges as the top contributor with 19 documents, demonstrating its significant research activity. Montpellier Business School follows with 18 publications, indicating its strong focus on this area. Bina Nusantara University and TBS Business School each have 15 documents, reflecting their active engagement in the field. Universiti Kebangsaan Malaysia has produced 14 publications, showcasing its research efforts. Universiti Sains Malaysia, King Abdulaziz University, Applied Science Private University, and Al Zaytoonah University of Jordan each have 12 documents, highlighting their substantial contributions. The Hong Kong Polytechnic University rounds out the list with 11 publications, emphasizing its involvement in advancing research on big data analytics and accounting information systems. This diverse array of institutions underscores the global interest and collaborative efforts in this evolving research domain.

4.3 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.

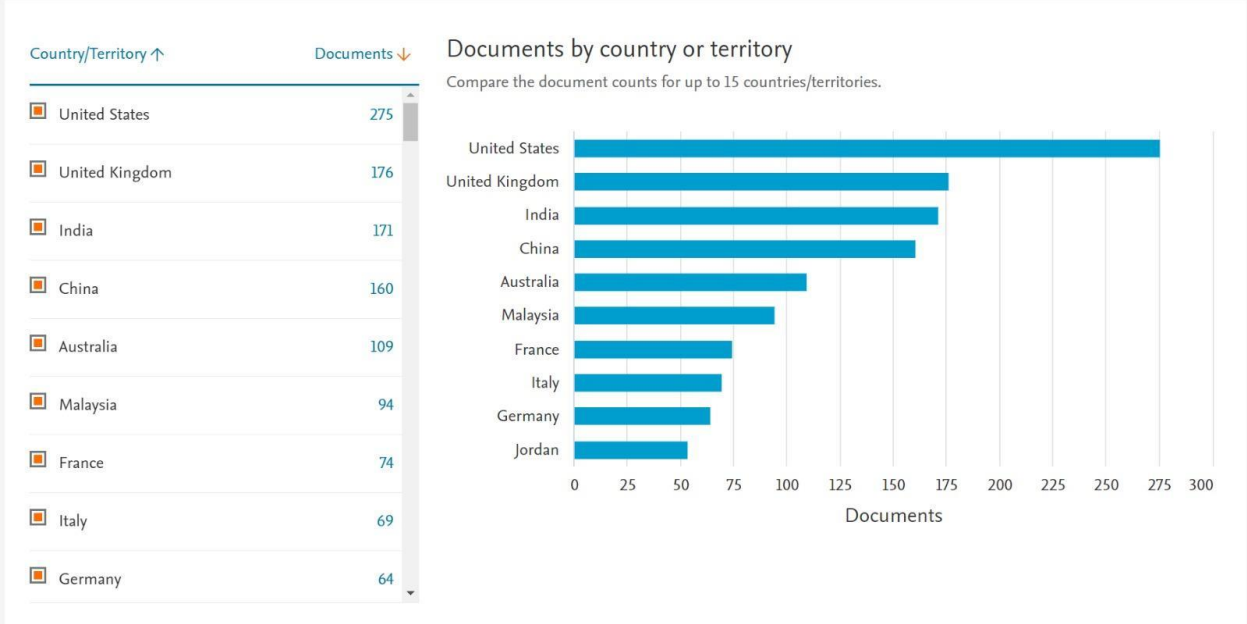


Figure 3: Documents by Country
Source: Scopus

The "Documents by Country" analysis for bibliometric research on big data analytics and accounting information systems reveals the geographical distribution of scholarly output in this field. The United States leads with a substantial 275 documents, underscoring its dominant role in advancing research. The United Kingdom follows with 176 publications, highlighting its significant contributions. India, with 171 documents, demonstrates robust research activity, closely trailing the UK. China also shows a strong presence with 160 documents, indicating its growing influence in the field. Australia contributes 109 documents, reflecting its active engagement. Malaysia has 94 publications, showcasing its research efforts. France, Italy, and Germany follow with 74, 69, and 64 documents respectively, indicating steady contributions from these European nations. Jordan, with 53 documents, also highlights its involvement in this research domain. This diverse international representation underscores the global interest and collaborative efforts in advancing big data analytics and accounting information systems research.

4.4 Citation by authors

Citations by Authors" measures how often an author's publications are cited by other researchers. This metric reflects the author's impact and influence within their field, with higher citation counts indicating

significant recognition and contribution to the discipline. It helps identify leading scholars, track research trends, and understand the academic network's dynamics.

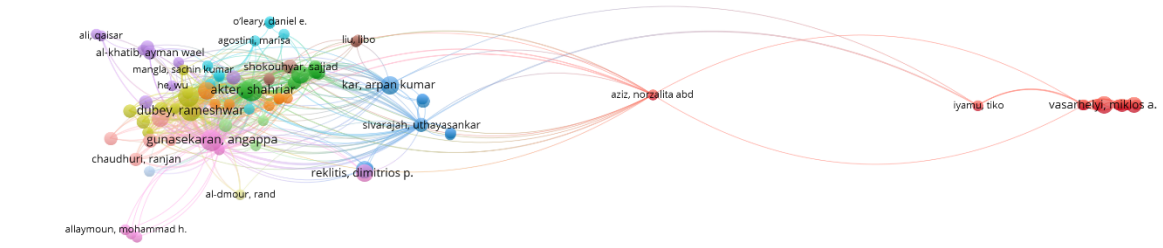


Figure 4: Citation by Authors
Source: Scopus

The citation pattern by authors in the field of big data analytics and accounting information systems reveals notable trends and highlights influential contributors. Angappa Gunasekaran stands out with 11 documents that have garnered a remarkable 3,894 citations, indicating significant impact and recognition in the academic community. Rameshwar Dubey follows with 9 publications and 2,189 citations, showcasing a strong influence. Shahriar Akter, with 12 documents and 1,101 citations, also demonstrates considerable contributions. Thanos Papadopoulos, despite having only 3 documents, has accumulated an impressive 1,573 citations, suggesting high-impact research. Similarly, Stephen J. Childe with 5 documents and 1,546 citations, and Uthayasankar Sivarajah with 5 documents and 1,480 citations, indicate substantial influence despite fewer publications. Samuel Fosso Wamba, with the highest number of documents at 14 and 1,676 citations, reflects a prolific and impactful research output. Cyril Foropon (10 documents, 1,379 citations), Shivam Gupta (8 documents, 614 citations), and Surajit Bag (7 documents, 477 citations) also contribute significantly to the field. This citation pattern underscores the varied contributions and the critical role these authors play in advancing research in big data analytics and accounting information systems.

4.5 Co-citation

Co-citations in bibliometric analysis track how often two or more documents are cited together by other works. This reveals the relatedness and influence of the cited documents, helping to identify key papers, thematic connections, and the intellectual structure of a research field.

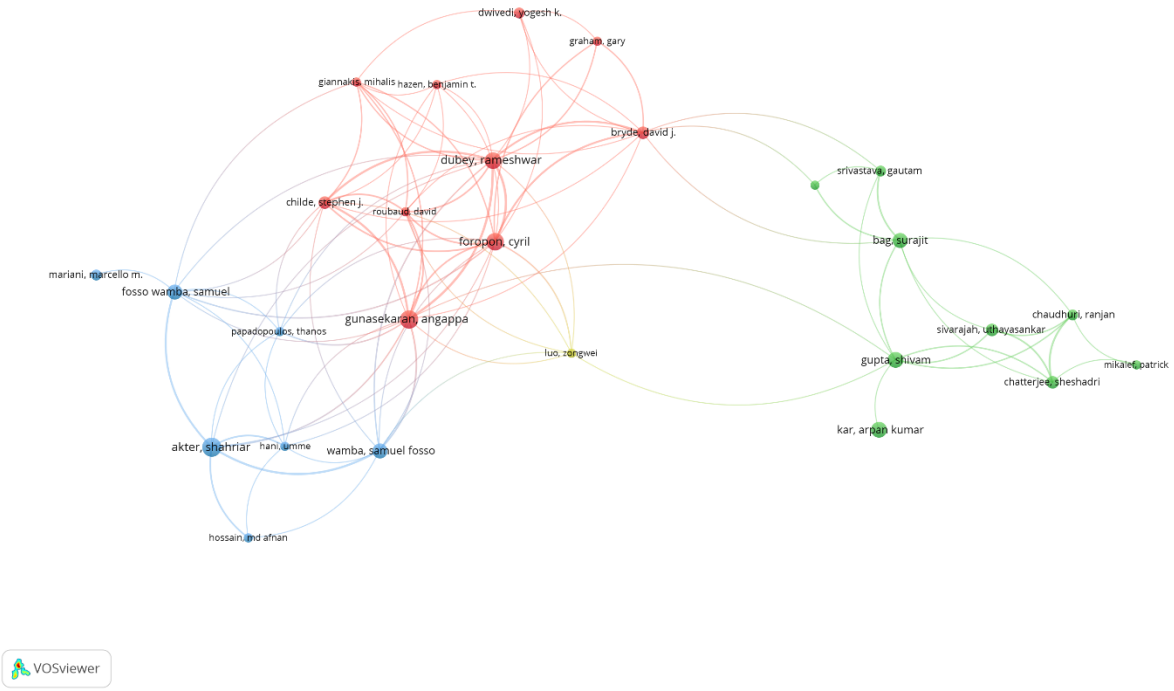


Figure 5: Co-citation
Source: Scopus

The citation pattern by authors in the field of big data analytics and accounting information systems highlights the significant contributions and varying levels of influence among key researchers. Angappa Gunasekaran leads with 11 documents and an impressive 3,894 citations, indicating his substantial impact on the field. Rameshwar Dubey follows with 9 documents and 2,189 citations, showcasing his influential research. Cyril Foropon, with 10 documents and 1,379 citations, and Shahriar Akter, with 12 documents and 1,101 citations, also demonstrate notable contributions. Stephen J. Childe has achieved 1,546 citations from 5 documents, reflecting high impact per publication. Other contributors include Mohammed Amin Almaiah and Mahmaod Alrawad, each with 4 documents and 254 citations, and Abdalwali Lutfi with the same count, indicating emerging influence. David J. Bryde, with 5 documents and 659 citations, and David Roubaud, with 3 documents and 790 citations, further underscore the diversity and depth of impactful research in this domain. This citation pattern reveals the breadth of contributions from these authors and their varying degrees of influence within the academic community.

4.6 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.

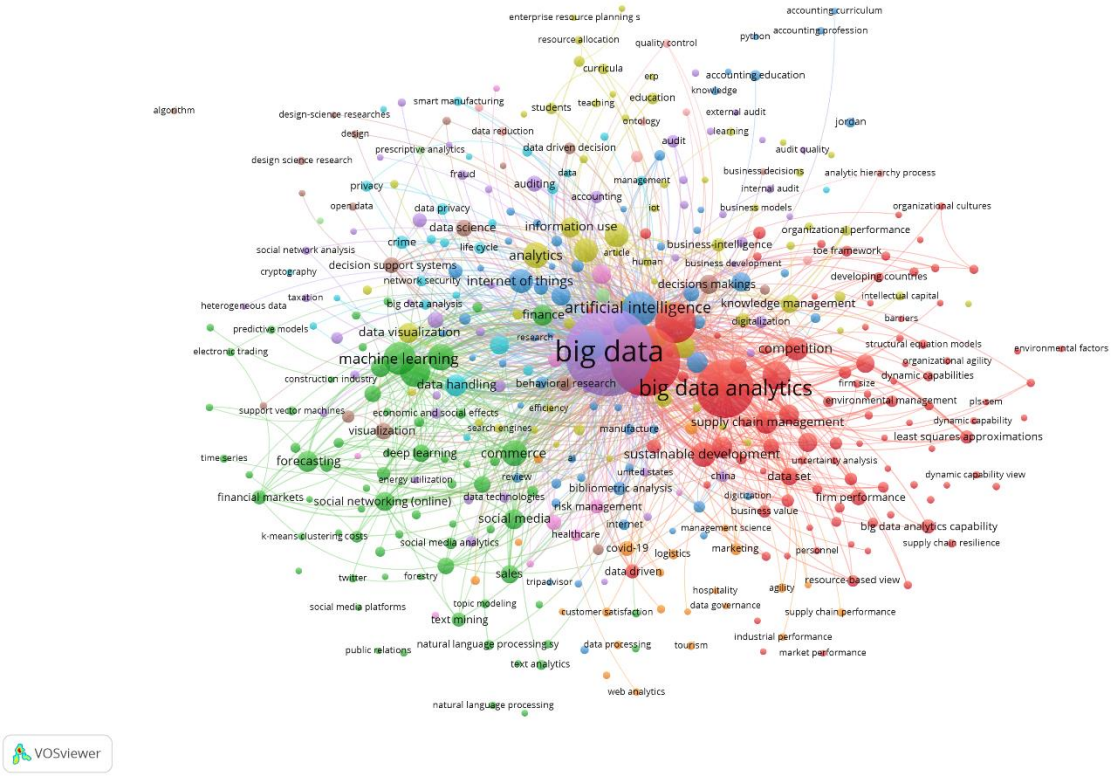


Figure 6: Co-occurrence
Source: Scopus

The co-occurrence of keywords in the bibliometric analysis of big data analytics and accounting information systems highlights several dominant themes. "Big Data" leads with 783 documents, underscoring its pivotal role in the research area. "Data Analytics," appearing in 490 documents, follows closely, reflecting its critical importance. "Big Data Analytics," with 339 documents, bridges these two concepts, emphasizing their combined significance. Keywords such as "Advanced Analytics" (170 documents), "Decision Making" (161 documents), and "Artificial Intelligence" (126 documents) indicate a strong focus on sophisticated analytical methods and their applications. The presence of "Machine Learning" (109 documents) and "Data Mining" (93 documents) points to the use of advanced algorithms for predictive analysis and pattern recognition. Additionally, "Information Management" (93 documents) highlights the necessity of effectively organizing and managing vast data volumes. This keyword landscape reveals a dynamic and interconnected research field centered around harnessing big data and advanced analytics for improved decision-making and organizational efficiency.

5. Conclusion

This bibliometric analysis provides a comprehensive overview of the research landscape surrounding big data analytics and accounting information systems (AIS). The analysis reveals a notable growth in the volume of publications over recent years, particularly from 2022 to 2024, indicating an increasing academic interest in the integration of big data technologies within accounting practices.

Key findings highlight the dominance of institutions such as the University of Wollongong and Montpellier Business School, which lead in publication output, reflecting their significant contributions to the field. The analysis of document affiliations also underscores the global spread of research efforts, with the United States, United Kingdom, and India emerging as the top contributors. This global perspective illustrates the widespread relevance and application of big data analytics across different regions and academic settings. In terms of authorship, prominent researchers such as Angappa Gunasekaran and Rameshwar Dubey stand out due to their high citation counts, suggesting their substantial influence on the field. Their work, along with other key authors, shapes the current discourse and advances in big data analytics and AIS.

The co-occurrence analysis of keywords such as "Big Data," "Data Analytics," and "Big Data Analytics" reveals a strong thematic concentration around data-driven decision-making and advanced analytical techniques. This clustering of terms indicates a significant focus on how big data can enhance decision-making processes within accounting information systems. Co-citation patterns further emphasize the interconnectedness of influential papers and authors, highlighting the foundational works that underpin current research and identifying key thematic clusters within the literature. Overall, this bibliometric analysis not only charts the evolution and current state of research on big data analytics in accounting information systems but also identifies future research directions. The growing body of literature suggests a fertile area for further exploration, particularly in integrating emerging technologies like artificial intelligence and machine learning with accounting practices. This research provides a solid foundation for future studies aiming to address gaps in the current literature and explore new dimensions of big data's impact on accounting information systems.

This bibliometric analysis, despite its comprehensive approach, is subject to several limitations. The reliance on specific databases may restrict the review's scope, potentially missing significant studies or emerging trends not covered by these sources. This limitation highlights the need for a broader range of databases to ensure a more complete representation of the research landscape. Another constraint is the accuracy of citation data. Citation practices vary widely across disciplines and regions, which can affect the reliability of citation counts and associated metrics. Furthermore, the bibliometric tools used may not fully capture all keyword co-occurrences and co-citation patterns, potentially limiting the depth and accuracy of the thematic analysis. Additionally, the focus on English-language publications could exclude important research published in other languages. This linguistic limitation might narrow the review's scope and overlook significant contributions from non-English-speaking regions, affecting the overall comprehensiveness of the analysis.

To overcome these limitations, future research should consider several enhancements. Expanding the range of databases used could help capture a more comprehensive view of the literature. Including non-English publications would provide a more global perspective and ensure that significant research from diverse linguistic backgrounds is considered. Incorporating emerging databases and grey literature could also offer a more nuanced understanding of the field.

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References

Agustí, M. A., & Orta-Pérez, M. (2023). Big data and artificial intelligence in the fields of accounting and auditing: A bibliometric analysis. *Spanish Journal of Finance and Accounting/Revista Española de Financiación y Contabilidad*, 52(3), 412-438.

Ali, B. J., & Oudat, M. S. (2020). Information quality and data quality in accounting information system: Implications on the organization performance. *International Journal of Psychosocial Rehabilitation*, 24(5), 3258-3269.

Alles, M., & Gray, G. L. (2016). Incorporating Big Data in audits: Identifying inhibitors and a research agenda to address those inhibitors. *International Journal of Accounting Information Systems*, 22, 44-59.

Anriva, D. H., & Hamidah. (2024). Exploring publication trends in accounting information systems and identifying research positions in Indonesia: A bibliometric analysis. *International Journal of Economics and Business Research*, 27(5), 29-44.

Appelbaum, D., Kogan, A., Vasarhelyi, M. A., & Yan, Z. (2017). Big data and artificial intelligence technologies in auditing: A review and research agenda. *International Journal of Accounting Information Systems*, 27, 1-21. https://doi.org/10.1016/j.accinf.2017.06.002

Archambault, É., Beauchesne, O. H., Caruso, J., & Oliver, D. (2009). Application of bibliometrics to analysis of research performance and international collaboration. *Scientometrics*, 82(1), 167-180.

Atzori, L., Iera, A., & Morabito, G. (2010). The Internet of Things: A survey. *Computer Networks*, 54(15), 2787-2805.

Bergman, E. M. L. (2012). Finding citations to social work literature: The relative benefits of using Web of Science, Scopus, or Google Scholar. *The Journal of Academic Librarianship*, 38(6), 370-379. https://doi.org/10.1016/j.acalib.2012.08.002

Bose, S., Dey, S. K., & Bhattacharjee, S. (2023). Big data, data analytics and artificial intelligence in accounting: An overview. *In Handbook of big data research methods* (pp. 32-51).

Brynjolfsson, E., & McElheran, K. (2016). The dawn of the age of data-driven decision-making. *MIT Sloan Management Review*.

Cao, M., Chychyla, R., & Stewart, T. (2015). Big Data analytics in financial statement audits. *Accounting Horizons*, 29(2), 423-429.

Catalini, C., & Gans, J. S. (2016). Some Simple Economics of the Blockchain. *NBER Working Paper Series*.

Chen, H., Chiang, R. H., & Storey, V. C. (2012). Business Intelligence and Analytics: From Big Data to Big Impact. *MIS Quarterly*, 36(4), 1165-1188.

Chen, M., Mao, S., & Liu, Y. (2014). Big data: A survey. *Mobile Networks and Applications*, 19(2), 171-209.

Codd, E. F. (1970). A relational model of data for large shared data banks. *Communications of the ACM*, 13(6), 377-387.

Dai, Q. (2022). Designing an accounting information management system using big data and cloud technology. *Scientific Programming*, 2022(1), 7931328.

Davenport, T. H., & Harris, J. G. (2007). Competing on analytics: The new science of winning. *Harvard Business Review Press*.

Dean, J., & Ghemawat, S. (2008). MapReduce: Simplified data processing on large clusters. *Communications of the ACM*, 51(1), 107-113.

Eckerson, W. W. (2005). Performance dashboards: Measuring, monitoring, and managing your business. *Wiley*.

Georgakopoulos, D. (1996). Information systems research in the 1990s: An overview. *International Journal of Information Management*, 16(2), 103-119.

Gartner. (2012). Hype cycle for big data. *Gartner Research*.

Hassan, M. K., Alshater, M. M., Banna, H., & Alam, M. R. (2023). A bibliometric analysis on poverty alleviation. *International Journal of Ethics and Systems*, 39(3), 507-531.

Inmon, W. H. (1996). Building the data warehouse. *Wiley*.

İyibildiren, M., Eren, T., & Ceran, M. B. (2023). Bibliometric analysis of publications on Web of Science database related to accounting information system with mapping technique. *Cogent Business & Management*, 10(1), 2160584.

Katz, J. S., & Martin, B. R. (1997). What is research collaboration? *Research Policy*, 26(1), 1-18.

Kessler, M. M. (1963). Bibliographic coupling between scientific papers. *American Documentation* (pre-1986), 14(1), 10-25.

Kogan, A., Vasarhelyi, M. A., & Yan, Z. (2017). Big data and artificial intelligence in auditing: A review and research agenda. *International Journal of Accounting Information Systems*, 27, 1-21. https://doi.org/10.1016/j.accinf.2017.06.001

Lidyah, R., Defitri, S. Y., Sudarmanto, E., & Rukmana, A. Y. (2023). The evolution of accounting information systems research: A bibliometric analysis of key concepts and influential authors. *The ES Accounting And Finance*, 1(03), 113-124.

Liu, Q., & Vasarhelyi, M. A. (2014). Big questions in AIS research: Measurement, information processing, data analysis, and reporting. *Journal of Information Systems*, 28(1), 1-17.

Marston, S., Li, D., Bandyopadhyay, S., Zhang, J., & Ghalsasi, A. (2011). Cloud computing - The business perspective. *Decision Support Systems*, 51(1), 176-189.

Maryanti, I. E. (2024). Analysis of the development of accounting information systems research with bibliometric analysis. *Enigma in Economics*, 2(1), 63-68.

Minovski, Z., Malcev, B., & Tocev, T. (2020). New paradigm in accounting information systems - the role of the latest information technology trends.

Moed, H. F. (2005). Citation analysis in research evaluation. *Springer*.

Moffitt, K. C., & Vasarhelyi, M. A. (2013). AIS in an age of Big Data. *Journal of Information Systems*, 27(2), 1-19.

Nurhayati, N., Hartanto, R., Paramita, I., Sofianty, D., & Ali, Q. (2023). The predictors of the quality of accounting information system: Do big data analytics moderate this conventional linkage?. *Journal of Open Innovation: Technology, Market, and Complexity*, 9(3), 100105.

Pratomo, A. B. (2023). Testing the effect of Big Data Analytics, cybersecurity measures, and user training on accounting information system performance in start-up companies in Indonesia. *West Science Business and Management*, 1(01), 42-50.

Qatawneh, A. (2022). The influence of data mining on accounting information system performance: A mediating role of information technology infrastructure. *Journal of Governance and Regulation*, 11(1).

Rozi, F. (2023). Cloud computing dan big data dalam accounting information system di era digital. *Literasi Jurnal Ekonomi Dan Bisnis*, 5(1), 21-30.

Small, H. (1973). Co-citation in the scientific literature: A new measure of the relationship between two documents. *Journal of the American Society for Information Science* (pre-1986), 24(4), 265-269.

Thayyib, P. V., Mamilla, R., Khan, M., Fatima, H., Asim, M., Anwar, I., ... & Khan, M. A. (2023). State-of-the-art of artificial intelligence and big data analytics reviews in five different domains: a bibliometric summary. *Sustainability*, 15(5), 4026.

Vasarhelyi, M. A., Kogan, A., & Tuttle, B. (2015). Big data in accounting: An overview. *Accounting Horizons*, 29(2), 381-396.

Warren, J. D., Moffitt, K. C., & Byrnes, P. (2015). How Big Data will change accounting. *Accounting Horizons*, 29(2), 397-407.

Yu, L. (2020, June). Analysis on the demand evolution of cloud accounting information system in the era of big data. *In 2020 5th International Conference on Smart Grid and Electrical Automation (ICSGEA)* (pp. 350-353). IEEE.

Zupic, I., & Čater, T. (2015). Bibliometric methods in management and organization. *Organizational Research Methods*, 18(3), 429-472.

Van Eck, N. J., & Waltman, L. (2010). Software survey: VOSviewer, a computer program for bibliometric mapping. *Scientometrics*, 84(2), 523-538.

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