

From Traditional Accounting to Sustainable Digital Accounting: The Role of Artificial Intelligence

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Abstract. *The digitalization and sustainability trends are triggering changes in the accounting industry. Manual accounting methods tend to fail to scale in terms of complexity. The increasing focus on sustainability has further highlighted traditional accounting methods' shortcomings in effectively measuring and reporting environmental, social, and governance (ESG) concerns. However, many AI accounting solutions are available; the integration of AI into most of the accounting systems is difficult. Concerns about data security, ethics, the usability of technology, and implementation costs pose significant obstacles. This paper seeks to address the deficiency of sustainable accounting and the adoption of AI by offering methods of achieving a shift towards sustainable digital accounting and presenting solutions to the problem by advising corporations and the government on the relationship between technology and sustainable policies. While AI has been applied in various fields, its integration into accounting, especially in the context of sustainability, remains an emerging area of research. Given the increasing emphasis on sustainability in corporate reporting and operations, understanding how AI can contribute to this shift is essential. Still, there are aspects AI integration such as ethical, technological, and regulatory compliance which remain to be understood. In this article, the authors are going to make use of a quantitative method based on data gathered from Web of Science to study AI and sustainable digital accounting. Using this approach, the study provides a fresh, data-driven perspective on the trends and challenges surrounding AI integration in accounting systems. The primary research question is: How can AI be utilized to transform sustainable accounting practices? Other objectives concern the evaluation of AI integration regarding the effectiveness and sustainability of the accounting practices and the concerns around adoption of AI. The findings of the study highlight that AI achieves greater accuracy, accountability as well as productivity in accounting procedures and simultaneously aids sustainable practices. These findings are relevant to organizations that are looking to implement AI into their accounting functions and to those responsible for policy formulated aimed at promoting sustainable initiatives in the corporate sector.*

Keywords: sustainable digital accounting, financial technology, ethical artificial intelligence (AI) in accounting, artificial intelligence (AI) driven accounting, bibliometric analysis.

Introduction

Accounting has served as the foundation for maintaining a record of funds for any business or a country for a long time. However, with constant concern regarding sustainability practices, traditional accounting is changing fundamentally. This shift is occurring because of technological

advancements. Keeping pace with technological developments means improving efficiency and visibility but also promoting sustainability.

Among the current promising technologies, artificial intelligence (AI) is the answer to revolutionizing the accounting world. AI is already automating repeatable, manual tasks, improving data quality, and letting finance be reviewed at more granular levels. Therefore, AI is a focus for developing sustainable digital accounting systems. This further enables this research to address the questions and issues concerning the advantages and complexities AI poses when integrated into contemporary accounting practices.

Traditional accounting, as crucial as it is to the economy, is increasingly becoming irrelevant when matched against the demands of contemporary corporations. Unlike contemporary automated methods, manual techniques are very slow, easy to make mistakes. In addition, the increased emphasis on sustainability reporting requirements has also uncovered the traditional accounting methods' inability to adequately address the measurement and reporting of environmental, social and governance (ESG) issues. But even with the existence of AI accounting solutions, the reality is that AI is not easily integrated into most accounting systems (Stafie & Grosu, 2023). Issues with data security, ethics, technology usability complications, and implementing expenses work as barriers.

Despite AI's increasing presence in accounting, little research explores its direct role in sustainability reporting, and ESG compliance. This study fills this gap by analyzing how AI can be leveraged to enhance sustainable accounting practices.

The paper explores the impact of AI-based solutions on sustainability in accounting, highlighting their role in optimizing ESG reporting, ensuring compliance with sustainability regulations, and automating financial decision-making processes (Santos et al., 2024).

The focus of this study is the growing attention of researchers and practitioners on AI accounting techniques, and the primary issues that influence the transition to that level. The invention of artificial intelligence provides the most profound changes and is associated with other transformations like machine learning, big data, and digital accounting.

The findings of this study illustrate, on a theoretical level, the increasing sophistication of AI from its traditional use in accounting towards more sustainable digital applications. Such evolution can have profound consequences not only for the practice of accounting but also for the institutions. From a practical perspective, the focus of the study is on the role of artificial intelligence in sustainable accounting practices within the accounting information systems of organizations.

The first part of the article deals with literature review and research design by clearly delineating the scope of the study and how the AI adoption in accounting was researched. The second section of the article presents the research methodology used. The third section elaborates the results with regards to the findings, including some key discussion topics from the preliminary outline, such as the primary constructive criticism of the literature as well as what issues remain unaddressed within the available literature. This section will also offer solutions to those issues, followed by the study's conclusions.

Literature review

Not very long ago, traditional accounting was done through manual bookkeeping processes, which were performed on paper-based systems, and relied on physical ledgers, in-person audits, and

localized data storage to track financial transactions. These methods, while foundational, are often time-consuming, exposed to human error, and limited in their ability to provide real-time insights.

Organizations and ledgers that depend on data capture and processing using computers and paper files are now being revolutionized by cloud computing (servers, disks, databases, networking, software, analytics) and robotic process automation. Blockchain is a digital ledger that captures and stores transactions across several servers to enhance security and transparency. It keeps a permanent record of all activities undertaken, errors are reduced to the bare minimum, while cloud systems help accountants to access financial data and work with colleagues from other countries. These systems improve the speed of data processing, reduce mistakes, and enhance the quality of decision-making (Hasan, 2022; Phornlaphatrachakorn & Kalasindhu, 2021).

The professional life of an accountant is changing yet again. This can be seen with the new CPA Evolution, which focuses on automation and data literacy. The CPA Evolution is a new licensure model that emphasizes skills in automation, data analytics, and emerging technologies, reflecting the changing landscape of accounting. New job titles like “AI Audit Specialists” or “Sustainability Reporting Managers” show how far the field has evolved. Even with all this change, there is still no substitute for the practitioners’ higher order thinking. This is the view of Prorok and Takács (2015), who state that financial decisions with ethical issues cannot be solved to the highest degree through algorithms, as human intervention is still essential to ensure that output provided through a machine is in line/follows the organizational culture and the society values.

These changes, however, have also disadvantages. Businesses face risks regarding data protection such as cyberattacks targeting confidential financial data, a lack of clarity regarding international regulations for data protection, and urgency for upskilling the labour force due to increased dependency on AI-equipped systems (Ievsieieva et al., 2024). For example, the European Union’s General Data Protection Regulation (GDPR), which enables penalties for data negligence, is making the use of AI tools in international companies difficult for apprehension of restricting data feeds essential for algorithm training.

AI, alongside machine learning, are enabling and disrupting the accounting sector because these allow accountants to automate many manual tasks, like invoice processing, payroll, and fraud detection. Through this, accountants' time is liberated for strategic tasks that bring greater value (Stafie & Grosu, 2023). Additionally, algorithms from machine learning can search entire datasets for abnormal information, outperforming the ordinary sample auditing method (Li & Zheng, 2018).

Odonkor et al. (2024) observe that data processing is a field where AI excels, but people will always need to interpret the context and make moral choices. The mix of technology and humanity is an important phenomenon that requires faith in both, further reiterating AI’s additional role in decision-making, rather than attempting to replace the practitioner's responsibility. In Romania, the adoption of digital technologies in accounting is gaining momentum, influenced by technological development and economic pressure.

Pantea et al. (2024) examine the impact of AI and Big Data on the transformation of managerial accounting in Romania. It is noted that larger companies have managed to adopt AI-based decision and sustainability reporting tools, whereas smaller companies have a harder time due to high implementation costs, cybersecurity, and lack of trained personnel. These outcomes are in line with international data, where small and medium enterprises are having obstacles with exploiting digital technologies (Pham et al., 2022). Moreover, Pantea et al. (2024) also point out to some regionally specific issues, such as insufficient cultural normalization of technological adoption, which makes it difficult to implement digital devices into the existing accounting system.

Prorok and Takács (2023) add that such resistance is based on the skepticism of the automated system in which ethical accountability is far more important than system efficacy. Still, this research shows that there is optimism regarding the potential of Romanian firms, as resources, innovation culture, and targeted strategies are part of a plan that can develop and transform the digitalization of accounting. This may improve transparency, efficiency, and strategic decision-making within the firms. The integration of technologies in the context of Romania has made it necessary to gradually implement the usage of digital tools within accounting practices. In their exploration of artificial intelligence and Big Data's effect on managerial accounting in Romania, Pantea et al (2024) found out that large companies have utilized AI tools for automation and enhanced decision-making, while small companies struggle due to the lack of infrastructure, high cybersecurity threats, and inadequate skilled employees. Analyzing the curricula of top universities in Romania, including the Bucharest University of Economic Studies, it is revealed that students enrolled in bachelor's degree programs are not offered enough classes on digital technologies, and those that tackle artificial intelligence concentrate on automation rather than real-world applications of machine learning, even if the students are just starting the program (Guşe and Mangiuc, 2022).

Santos et al. (2024) highlights that AI is impacting sustainable digital accounting by automating repetitive tasks, improving accuracy, and allowing professionals to focus on strategic analysis. This transformation leads to operational efficiency and improves analytical capabilities, enabling organizations to make informed decisions that support sustainability goals. As Adelakun et al. (2024) argue, AI encourages interdisciplinary collaboration, ensuring that models align with environmental science principles and accounting standards, ultimately supporting sustainability development goals.

The study conducted by Nair et al. (2024) shows that AI influences sustainable digital accounting by optimizing investment portfolios, improving risk assessment, promoting financial inclusion, and streamlining sustainability reporting, and the integration of FinTech with artificial intelligence facilitates the construction of comprehensive sustainability frameworks within organizations.

Methodology

The purpose of this paper is to offer a comprehensive visualization of the research landscape surrounding AI and accounting, aiming to assess the current state of knowledge in this field. Through the application of bibliometric analysis, the study identifies prevailing research trends and suggests promising areas for future exploration.

Bibliometric analysis is a structured method for examining the dynamics of a specific knowledge domain using various analytical tools (Rejeb et al., 2022). It maps and investigates published material across different scientific areas to reveal the underlying trends and research gaps.

The study follows a three-step research procedure: identifying relevant keywords and databases, collecting data, and conducting analysis to derive meaningful results. The dataset was extracted from the Web of Science database, a leading platform in scientific research.

The selection process focused on studies addressing traditional accounting practices, with the integration of digital accounting tools, and the transition toward sustainability-driven financial reporting. The research was conducted using the following topic search formula:

TS=("Traditional Accounting") OR TS=("Conventional Accounting") AND TS=("Sustainable Accounting") OR TS=("Green Accounting") OR TS=("Environmental Accounting") OR TS=("Sustainability Reporting") AND TS=("Digital Accounting") OR TS=("Cloud Accounting") OR TS=("AI in Accounting") OR TS=("Automation in Accounting") AND TS=("Artificial Intelligence") OR TS=("AI-driven Accounting") OR TS=("AI-powered Financial Reporting") AND TS=("Financial Sustainability") OR TS=("ESG Reporting") OR TS=("CSR Accounting").

This formula included the three main topics of interests interconnected in this research: traditional accounting, digital accounting and AI impact, environmental accounting and sustainable financial reporting. These topics were reflected in the search string used in WoS.

The subject areas were filtered to include business, management accounting, economics, econometrics, and finance (449 documents). The document types were restricted to articles, book chapters, conference papers, and books, all in English.

The search was conducted in February 2025, covering publications from 2019 to 2024, resulting in a final dataset of 449 documents. The authors have chosen this period because of the relevance of the articles. Year by year, technology evolves and as data gets older, it becomes less relevant. The research starts from 2019 because before that year the number of publications were not significant. A noticeable increase in publications began in 2019 (48 publications). The number of publications increased steadily each year, with a peak in 2024. By covering publications for 6 years starting with 2019, the research highlights the progressive impact of digitalization and AI on traditional accounting.

VOSviewer is a robust tool for creating and visualizing bibliometric maps. The analyses performed include keyword co-occurrence network, co-occurrence analysis of author keywords, co-authorship by countries and bibliographic coupling. Through these methods, the study provides a detailed overview of current research trends and highlights key areas for future exploration in the integration of AI within accounting practices.

Biblioshiny is a web-based bibliometric analysis tool, part of the bibliometrix R package, used for data processing and statistical insights (Ghorbani, 2024). Biblioshiny focuses on data cleaning/metrics, while VOSviewer is best in interactive network visualization.

VOSviewer software version 1.6.20 was used for data analysis to create maps based on data selected from the sample 449 documents. For comparison, based on the same dataset, Biblioshiny version 4.0 was also used. By using both Biblioshiny's analytical power and VOSviewer's visualization strengths, researchers can efficiently map research landscapes and discover emerging trends.

Results and discussions

Understanding the evolution of research in sustainable digital accounting and artificial intelligence requires a detailed analysis of key bibliometric indicators.

The explosion in publications on sustainable digital accounting and AI for 2024 shows that there is combination of technology, regulations, and society which has driven the need of researching this topic. The developments in AI tools, like generative AI and machine learning over the years, have allowed for better integration of these tools into accounting practices which increase the accuracy and sustainability of financial workflows. At the same time, some global sustainability requirements like the EU's Corporate Sustainability Reporting Directive have forced businesses and academia to consider compliance, and reporting transparency powered by AI.

This change is even more advanced by growing demand for new marketing innovations as cost-efficient and green business practices become more prominent and ESG expectations from stakeholders grow requiring complex data analysis to be performed by AI.

Support from institutions through grants and proposals aimed at digital transformation and sustainability have boosted research as the pandemic also increased the drive towards solving long standing problems such as automation and resource management. Furthermore, collaborations that involve accounting experts, data scientists, and specialists in sustainability have further engendered innovations, aided by conferences and specific academic institutions. All these elements indicate a societal need for harnessing technology towards achieving sustainable development, placing researchers as proactive awardees to the development of an AI-oriented, ethically responsible accounting field.

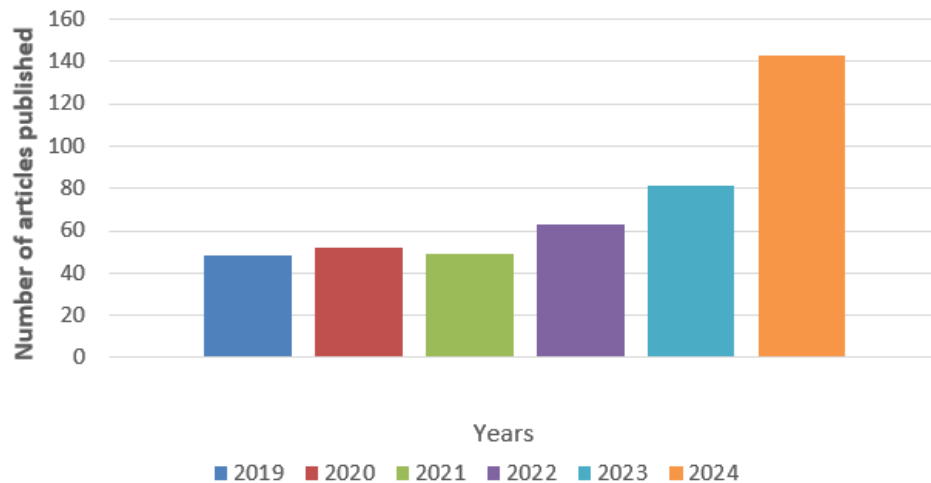


Figure 1. Numbers of articles published and their annual distribution during the period 2019-2024

Source: Authors' own research based on dataset extracted from Web of Science, 2025.

In the context of financial accounting, traditional accounting provided rules and regulations to follow to ensure compliance, consistency and precision in reporting. The recent movements of the international economy towards sustainability and digitalization of processes demands the union of traditional frameworks of accounting with ESG reporting, AI-assisted processes, and cloud computing for accounting.

The keyword co-occurrence network provides valuable insights into important topics in the field of sustainable digital accounting and artificial intelligence. Figure 2 shows that the key themes are intertwined, particularly with respect to sustainability and the effect of AI technologies affecting the development of the accounting landscape.

The timeline of the articles sheds more light on the progression of research in this area and is illustrated in Figure 1. An increase in publications is noted especially in 2024. This suggests increased in the academic focus on the move away from conventional accounting towards sustainable accounting and the use of AI in accounting practices.

The green cluster primarily concerns sustainability performance, environmental social governance (ESG) reporting, ESG and corporate governance/responsibility, and the relationship between financial and sustainable corporate performance, linking good ESG practice and

corporate sustainability to corporate social responsibility (CSR) and environmental reporting. This shows that disclosure, legitimacy and governance are well associated, and this indicates the shift that sustainability related disclosures reflect regulatory and ethical factors.

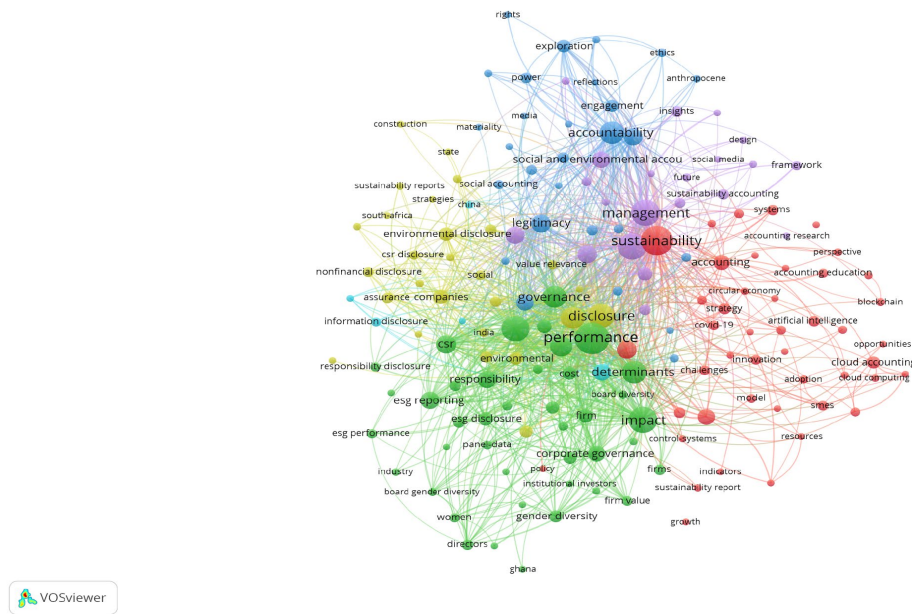


Figure 2. Keyword Co-Occurrence Network

Source: Authors' own research using VOSviewer.

The red cluster, which includes artificial intelligence, cloud accounting, blockchain, automation, innovation, and strategy, highlights the technological transformation in the field of accounting. The presence of concepts such as control systems, digital transformation and SMEs indicates a growing interest among researchers in the practical applicability of artificial intelligence in financial reporting, corporate decision-making and risk management.

The close interaction between ESG reporting and AI-based accounting within this cluster highlights the increasingly important role of automation in ensuring compliance, optimizing efficiency and increasing the reliability of sustainability-related disclosures.

The blue and yellow clusters cover topics such as legitimacy, engagement, governance, ethics, and social and environmental accounting, reflecting the broader social and ethical concerns in this field.

The intersection of these clusters highlights that sustainability and AI-based accounting are not distinct research areas, but rather interdependent areas of study. It is becoming increasingly clear that these trends have a profound impact on the future of corporate reporting and financial transparency. The research indicates a transition to artificial intelligence-based reporting systems that not only automate financial processes but also strengthen corporate accountability by increasing the accuracy and transparency of sustainability disclosures.

Keyword co-occurrence analysis involves constructing co-occurrence networks, by identifying keywords in the text, calculating the frequencies of co-occurrences, and analyzing the networks to find central words and clusters of themes (Stoykova, 2024).

Figure 3 presents a network visualization map of co-occurrence on the keyword. In contrast to general keyword analysis, this analysis removes system-generated terms and allows us to see

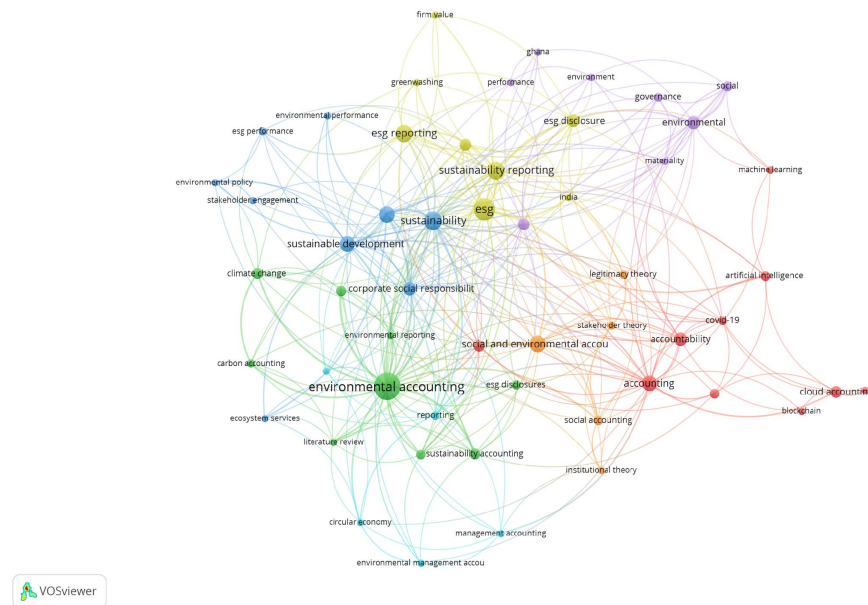


Figure 3. Co-Occurrence of Author Keywords

Source: Authors' own research using Biblioshiny.

The areas of intersection between sustainability, ESG reporting, and environmental performance reveal a growing concern for how environmentally responsible accounting practices can be carried out under a system of capitalist economic relations.

The connections to stakeholder engagement and legitimacy theory highlight investor perception as shaping the modern business practices being called green.

Another important cluster is artificial intelligence, cloud accounting, and blockchain. This indicates how digital transformation increasingly plays a role in the field of financial reporting and corporate decision making. Placing AI and machine learning in the same cluster as accounting, digital innovation, and accountability suggests that research is gradually turning towards how to realize an automated system that can make financial reports more accurate, and the decision-making processes more accountable overall.

The presence of blockchain within this cluster emphasizes its growing importance in guaranteeing data security and transparency in sustainability disclosures. The relationship between environmental accounting, circular economy and carbon accounting indicates a tendency to incorporate ecological sustainability into now corporate finance strategy. This is consistent with the recent craze for environmental management accounting or environmental accounting management as a method of measuring the financial effects of environmentally sound practices.

The combination of these research themes indicates the interconnected nature of sustainability, digital transformation, and financial responsibility.

The wide distribution of main keywords suggests that research in this field is developing quickly and bridging the gap between traditional financial reporting and the needs of a digitally driven, sustainability-based economy.

The interaction between these research themes underscores the interconnected nature of sustainability, digital transformation, and financial accountability. The broad distribution of key

terms suggests that the field is evolving rapidly, bridging the gap between traditional financial reporting and the demands of a digitally driven, sustainability-focused economy.

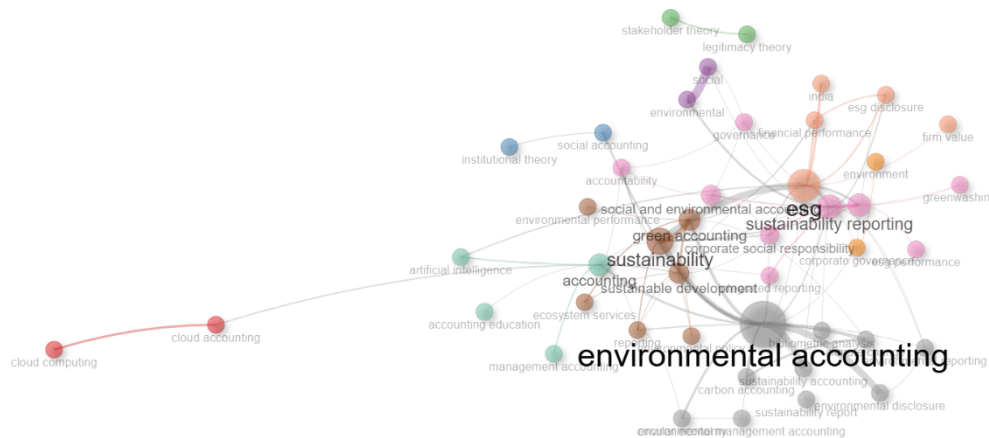


Figure 4. Co-Occurrence of Author Keywords

Source: Authors' own research using Biblioshiny.

The VOSviewer and Biblioshiny visualizations of the same data reveal different structural features in how keywords are represented. The network illustrated using Biblioshiny is less interconnected and more diffuse, in comparison to the previous figure.

The nodes are scattered, which allows the viewer to better observe the progression of individual fields of study over time. This layout accentuates conceptual development of the more traditional fields like sustainability and artificial intelligence by offering distinct phases of established versus emerging themes.

The second version of the illustration provides the best opportunity for identifying conceptual structures and emerging research directions, which makes it more suited for detecting gaps and prospective areas of research in the field.

On the other hand, VOSviewer helps in understanding how existing research is interconnected, by stressing the network of well-known ideas. Understanding how AI helps create sustainable digital accounting and, the other way around, how it affects governance, ESG, and financial performance becomes possible when the two different illustrations are combined.

The co-authorship by countries analysis reflects a global and collaborative research map. United States, Australia, and UK are the most active contributors, with a significant volume of publications and strong international collaborations.

These countries have a strong partnership with European partners such as Italy and Germany. Within the European Union countries such as Spain, France, Germany and Italy play an essential role in integrating digital technologies into accounting practices. Also, we can notice that China and India are emerging with a growing focus on implementing AI and blockchain technology in accounting systems.

In figure 5 we can see the research landscape is expanding to include contributions from the Middle East and Southeast Asia. Countries such as the United Arab Emirates, Malaysia, Indonesia, and Vietnam have started to focus on financial compliance and sustainability, but with a lower volume of publications.

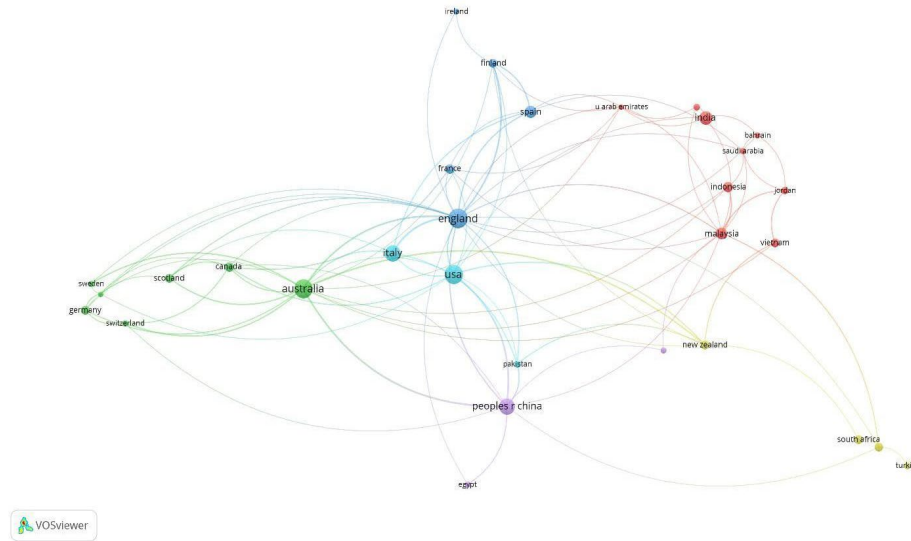


Figure 5. Co-authorship by Countries

Source: Authors' own research using VOSviewer.

The Anglo-American countries (mainly United States, United Kingdom, and Australia) are primarily concerned with automation and AI integration in accounting. The European countries (Spain, France, Germany and Sweden) research focus is mainly on sustainability reporting, ESG compliance, and responsible financial practices.

In parallel, Asian countries such as China, India, Malaysia, and Indonesia are interested in digital accounting technologies, particularly in the context of emerging economies. The presence of countries from Middle Eastern and African suggests a growing interest in sustainable finance in these regions.

To conclude on the co-authorship analysis by country, it seems that countries with strong economies drive technological advancements while emerging markets' objective is to integrate AI and automation in financial solutions. Developed and emerging countries have a shared interest in achieving greater transparency, efficiency, and sustainability in accounting practices.

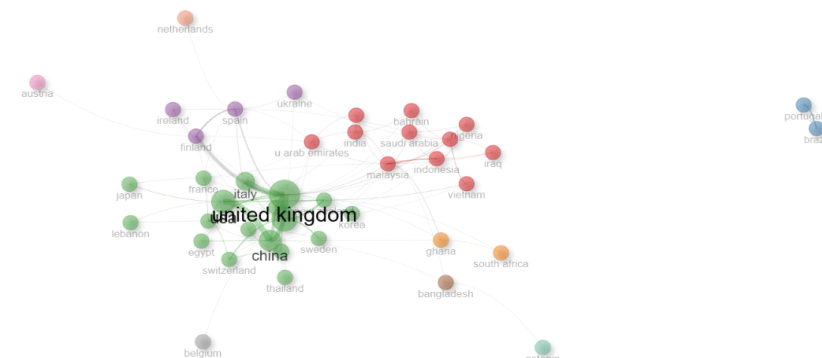


Figure 6. Co-authorship by Countries

Source: Authors' own research using Biblioshiny.

The bibliometric analysis performed with Biblioshiny displays a well-structured map of international partnerships comprising clusters illustrating primary research associations between

countries. It shows the United Kingdom, which has strong relationships with other countries, as one of the key players. The existence of several clusters indicates potential regional research centers like European and Asian countries and their collaborative partnerships. This network demonstrates considerable connections between Australia, the US, England, and China, which suggests their prominence in the world.

Also, clusters of India, Malaysia, and South Africa show developing research partnerships. As the analyses reveal, Biblioshiny focuses on modular regions with dominant structures, while VOSviewer analyzes the depth and count of the co-authorships within the area giving a contrast view on the academic environment. They together explain how research is being conducted internationally.

Bibliographic coupling is a link between two documents that both cite the same third document. Consequently, this common third document appears in the references of the other two documents (Stoykova, 2024). Figure 7 provides insights into bibliographic coupling among authors in the field of traditional accounting, digital transformation and AI impact and sustainable digital accounting.

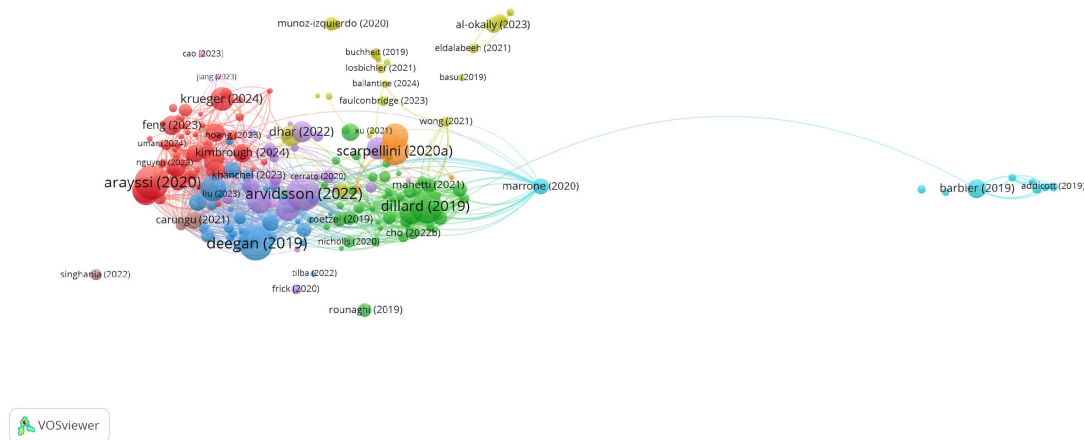


Figure 7. Bibliographic Coupling of Documents

Source: Authors' own research using VOSviewer.

In the red cluster in Figure 7, we find the seminal studies focusing on integrating artificial intelligence, automation, and cloud accounting into sustainability reporting and financial transparency. These efforts investigate how digital technologies are upgrading classic accounting practices and signal the need to prepare corporate governance, disclosure effectiveness, and risk management for an age of AI-assisted decision making. The presence of several recent publications in this cluster shows that it is a contemporary and active research area. Moreover, the blue cluster is built red on theoretical insights regarding sustainability accounting, with key themes including accountability, legitimacy, and governance structures.

Research in this group explores the ways sustainability efforts become embedded in practices of financial reporting that shape corporate ESG disclosures. Based on the document in this cluster, the works from Deegan (2019) and Arvidsson and Dumay (2022) demonstrate that most documents are focused on sustainability and legitimacy theories in accounting.

The green cluster is another important subset that includes studies discussing financial performance, engaging stakeholders, and the influence of disclosure policies in shaping organizations — the effect of ESG compliance on institutional credibility. This cluster is strongly

connected with the studies in both the red and blue groups, reinforcing interdependence between technological innovation, regulatory standards, and corporate social responsibility. In the publications of Dillard and Vinnari (2019) and Marrone et al (2020) it is indicated their descriptive relevance to the ongoing debate about how sustainability reporting connects corporate finance with morally responsible business.

Another more insular group, though not quite irrelevant (the light blue cluster), includes publications that have tenuous ties to the primary literature but still add value to niche questions.

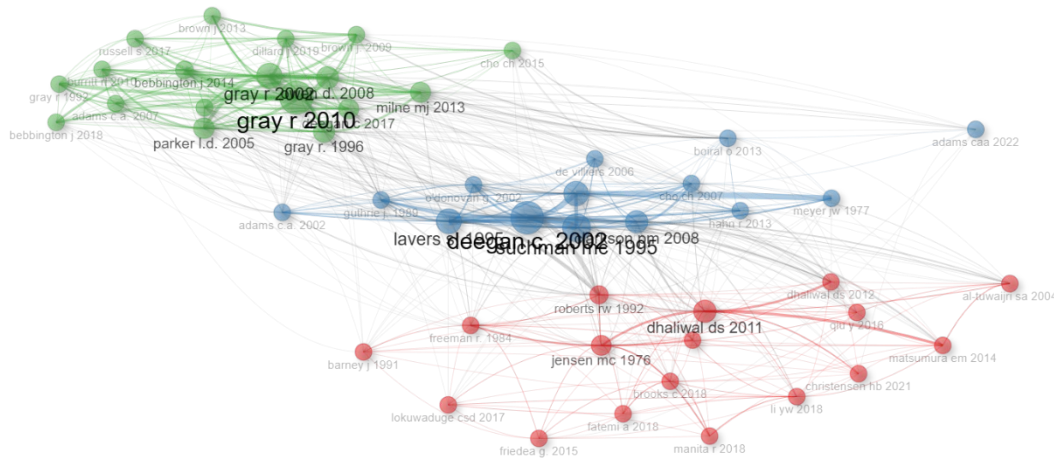


Figure 8. Bibliographic Coupling of Documents

Source: Authors' own research using Biblioshiny.

Analysis with Biblioshiny demonstrates a citation network that is structured in three main clusters, one in red, another in blue, and one in green. The cluster in green, located at the top left, has interconnected studies in focus of a particular subfield, while the center blue cluster highlights major contributions that are integrations of various domains of research. The bottom red cluster forms a high citation network that is dense, which means that there is a collection of a literature in which citations are highly interlinked. The thick lines that join the clusters means that there are strong co-citation ties between the foundational works.

Conclusion

The use of AI has changed the accounting profession by improving efficacy, accuracy, automation, and decision-making. It has also aided in the implementation of sustainable accounting practices.

So, how can AI be used to enhance sustainable accounting approaches? AI improves sustainable accounting practices by automating repetitive functions like data entry, invoice processing, and enhancing accuracy in monitoring ESG metrics, which facilitates the analysis of sustainability performance in real time. It also assists in mitigating risks by ensuring compliance with international requirements such as the EU's Corporate Sustainability Reporting Directive through effective data capturing and report generation.

Furthermore, machine learning enables resource allocation optimization, sustainability risk forecasting, and strategic decisions that promote a circular economy or decarbonization objectives. For example, larger companies in Romania use AI driven tools for automating sustainability reporting while blockchain technology guarantees the integrity of the ESG data reporting.

Despite such efforts, there remains the problem of high costs of implementation, cybercrimes, and skill shortages, especially among small and medium enterprises. The ethical considerations require human judgment and so does the practical application of the AI outputs, which aligns the organizational values with activity outcomes.

Through the integration of automation in the performance of strategic analysis, accounting no longer serves as an operational necessity but as a driver for a more socially responsible, cognizant approach that preserves operational effectiveness and accountability to the society.

The study reflects a clear convergence of sustainability, AI, and digital accounting, with increasing interdependency among research areas on these topics, that were traditionally treated separately. The strong links between studies on AI-driven reporting, ESG compliance, and governance indicate a growing recognition of technology's role in ensuring financial and environmental accountability. The presence of both theoretical foundations and new research initiatives suggests that future studies will continue to explore the implications of automation and AI adoption on sustainability disclosure practices, ethical considerations in financial reporting, and the evolving role of accountants in an increasingly digitalized financial landscape.

There are some limitations to this study that should be noted. First, it is based on a single database, Web of Science, which, while reputable, may not cover all relevant publications — including industry reports and non-indexed research. Expanding the dataset to include additional sources could provide a more comprehensive perspective. Moreover, while bibliometric analysis is useful in revealing trends of influential work, it provides little context for those working in the field about what these publications highlight in terms of the practical implications of AI in accounting. Including case studies or expert interviews, for example, would give this analysis a mixed methods approach that would deepen its findings. The study covers publications from 2019 to 2024, which provides a perspective on the medium-term trends, but also does not fully grasp all that this fast-moving sector has to offer in more recent times. In addition, the selection of search keywords may not be exhaustive, resulting in some studies on this topic being missed due to alternate terminologies being used. Future studies could mitigate these limitations and offer a more sophisticated and practical understanding of sustainable accounting in a transformative AI world.

These results are important for those organizations which will try to deploy AI to their accounting functions. Artificial intelligence helps to improve financial reporting, providing greater transparency and supporting sustainability initiatives. However, effective implementation requires overcoming major obstacles, such as limited access to technology, ethical issues, and complex regulations.

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