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Revolutionizing Financial Auditing: Integrating Artificial Intelligence for Improved Efficiency and Accuracy

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Abstract

Face to face with the complex and various challenges generated by the rapid evolution of technology in financial auditing, artificial intelligence (AI) is emerging as a key element for innovation, providing advanced solutions to adapt to dynamic market needs. By analyzing real-time data, identifying anomalies and generating predictive insights, AI significantly improves accuracy, efficiency and risk understanding in auditing, marking an essential step towards optimal performance in a changing environment.

The authors set out to investigate the impact of artificial intelligence in auditing using bibliometric analysis and statistical approaches to highlight the essential role of artificial intelligence technologies in the evolution and optimization of the financial audit process.

In conclusion, the implementation of artificial intelligence in auditing offers significant advantages, such as increased efficiency, accurate fraud detection and adaptation to specific client requirements, but it is vital to recognize the challenges and limitations in order to fully exploit the potential of artificial intelligence and revolutionize audit practices in the digital era.

Key words: *audit; artificial intelligence; integration; efficiency;*

JEL Classification*: M40, M42, O33*

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1. Introduction

Contextualizing the need for innovation in financial auditing with the help of artificial intelligence

In the context of the rapid evolution of technology, financial auditing faces increasingly complex and varied challenges, requiring continuous innovation to remain relevant and effective in the current and future environment (Agarwal and Dhar, 2018). In this regard, artificial intelligence (AI) has become a crucial element in the transformation of financial auditing, providing advanced and customized solutions to address the specific needs of organizations and increasingly interconnected financial markets (Giraud-Carrier and Dunham, 2018). Through its capabilities to analyze real-time data, identify anomalies and generate predictive insights, AI adds significant value to the audit process, facilitating greater accuracy, efficiency and understanding of associated risks. Thus, it is evident that the integration and development of artificial intelligence technologies in financial auditing is an essential step towards adapting to dynamic market demands and ensuring optimal performance in the provision of audit services in a constantly changing environment (Vasarhelyi et al., 2017).

The purpose of the work

The purpose of this paper is to investigate and evaluate the impact of artificial intelligence (AI) in the field of auditing, with special attention to bibliometric analysis and statistical approach. Using a rigorous methodology, based on data and figures, we will examine the evolution of research and trends in this field, highlighting the importance and role that artificial intelligence plays in the financial audit process. Through an exhaustive bibliometric analysis and appropriate statistical methods, we aim to highlight the key contributions, research directions and practical impact of the use of artificial intelligence technologies in financial auditing.

2. Theoretical foundation and bibliometric analysis

Description of the principles of artificial intelligence and the history of financial auditing

The principles of artificial intelligence (AI) and the history of financial auditing are two fundamental pillars in the deep understanding of how modern technologies can influence and transform auditing practices in the financial field. Basic principles of artificial intelligence include understanding the concepts of machine learning, neural networks, natural language processing, and decision algorithms. These concepts form the technological basis of artificial intelligence and are essential to understanding how this technology can be applied in various fields, including financial auditing.

To trace the evolution of financial auditing it is necessary to explore the history of this field, starting from its origins and its evolution in the context of technological and social changes (Velázquez et al., 2018). Financial auditing has evolved over time, starting from traditional and manual methods, to adopting IT and digital technology in audit processes (Alles et al., 2018). With the advent of computers and specialized software, financial auditing has become more efficient and accurate, allowing auditors to analyze larger and more complex data sets in less time.

However, the introduction of artificial intelligence in financial auditing marks a significant stage in the evolution of this field (Peng and Tian, 2023). Artificial intelligence brings with it advanced capabilities for data analysis, pattern identification and generation of relevant insights for the audit process (Alles et al., 2018). By applying machine learning algorithms and natural language processing technologies, artificial intelligence can assist auditors in identifying risks, detecting fraud and optimizing overall audit processes (Kapplan et al., 2019; Chassignol et al., 2018).

Therefore, the description of the principles of artificial intelligence and the historical path of financial auditing not only illustrates the technological and methodological evolution of this field, but also emphasizes the importance of adopting and integrating modern technologies in auditing practices to meet the ever-changing needs and requirements (Bizarro et al., 2019).

Presenting a bibliometric analysis of existing literature on artificial intelligence in auditing

Presenting a bibliometric analysis of the existing literature on the use of artificial intelligence (AI) in auditing is crucial to gain a deep understanding of the advances, trends and research directions in this field. This review will involve evaluating and synthesizing relevant scientific papers, highlighting major contributions, emerging trends and identified research gaps. By applying appropriate bibliometric methods, the frequency and distribution of

publications in the field will be identified, as well as the relationships between authors, institutions and keywords used. We will also examine the temporal evolution of research and significant changes in researchers' priorities and concerns regarding the application of artificial intelligence in auditing. This bibliometric analysis will provide a comprehensive overview of the current state of research and provide important guidance for future research and development directions in this interdisciplinary field.

3. The utility of artificial intelligence in auditing

Exploring the specific ways in which artificial intelligence is used in financial auditing

Exploring the specific ways in which artificial intelligence (AI) is being used in financial auditing is essential to understanding the depth and diversity of the impact this technology can have on finance. In this context, it is crucial to analyze and debate the various applications of artificial intelligence in auditing, with a particular focus on the methods and technologies used for data analysis and fraud detection (Hasan, 2022).

One of the most important applications of artificial intelligence in financial auditing is data analysis. By using machine learning algorithms and data processing technologies, artificial intelligence can analyze highly complex and voluminous data sets in real time, identifying patterns, trends and anomalies that may be relevant to the audit process (Zhang et al, 2022; Gepp et al., 2018; Seethamraju and Hecimovic, 2020). This data analysis capability allows auditors to gain deeper and more accurate insights into an organization's financial performance and identify potential risks or issues that may require further attention (Oluwasegun et al., 2023).

In addition, artificial intelligence plays a crucial role in fraud detection in the financial audit process (Gao and Han, 2021). By using advanced fraud detection algorithms, artificial intelligence can analyze suspicious behavioral and transactional patterns, identifying fraudulent or non-compliant activities with financial rules and regulations. This fraud detection capability can significantly contribute to improving the integrity and transparency of the audit process, thereby protecting the interests of clients and investors (Munoko et al. 2020).

Advantages of using artificial intelligence in auditing

The use of artificial intelligence (AI) in auditing brings with it numerous advantages and benefits, which help to improve the audit process and achieve more accurate and relevant results.

Increased efficiency of the audit process: Artificial intelligence can automate and optimize many of the repetitive and laborious activities in the audit process, allowing auditors to focus their efforts on data analysis and interpretation. For example, the use of machine learning algorithms can speed up the process of identifying anomalies and trends in financial data sets, thereby reducing the time required to complete the audit (Huang and Vasarhelyi, 2019).

Effective fraud detection: Artificial intelligence can be used to identify suspicious patterns or anomalous behavior in financial transactions, helping auditors to detect possible fraud faster and more accurately. A notable example is the use of fraud detection algorithms to analyze suspicious transactions in banking systems or the insurance industry (Aboud and Robinson, 2022).

Predictive analytics and risk assessment: Artificial intelligence can provide powerful tools for analyzing historical data and predicting the future evolution of key variables in the audit process. By using predictive models, auditors can identify potential risks and opportunities before they become clearly evident, thus enabling more effective risk and resource management (Adebiyi, 2023).

4. Methodology

This study aims to explore the penetration and impact of artificial intelligence in the audit field through a rigorous bibliometric analysis. To achieve this, we extracted relevant data from the Web of Science Core Collection, a prestigious and highly referenced bibliographic resource for global academic publications. The extraction process was guided by specific keywords detailed in ***Figure no. 1*** and was conducted on February 20, 2024, thus ensuring that the review includes the most recent contributions in the literature.

Figure no. 1. Database selection criteria – Web of Science

TOPIC – OR	ARTIFICIAL INTELLIGENCE IN AUDIT
	AI IN AUDIT
	ROBOTIC PROCESS AUTOMATION IN AUDIT
	RPA IN AUDIT
	MACHINE LEARNING IN ACCOUNING

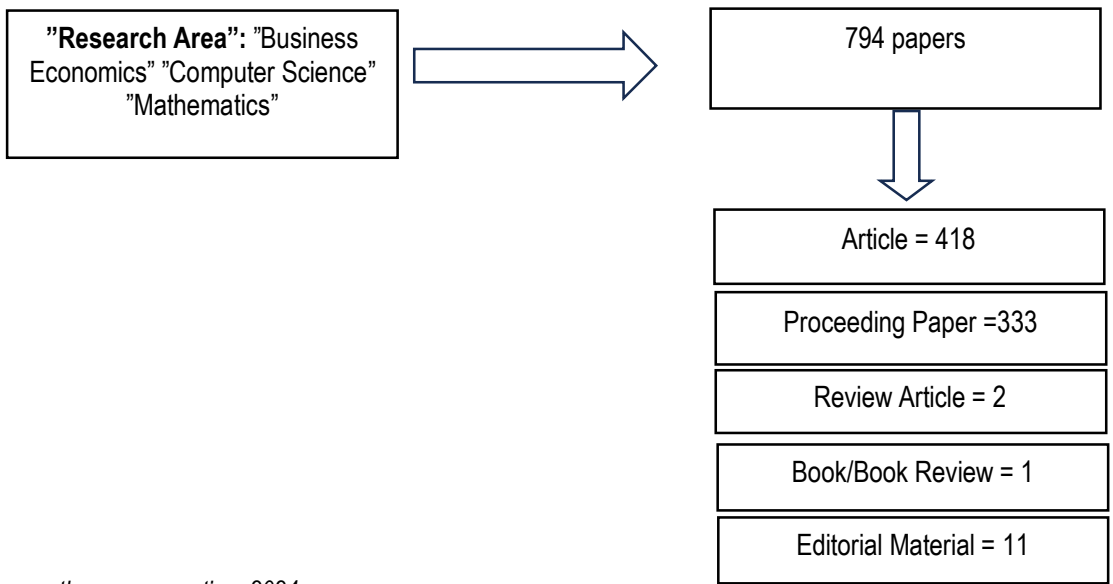
Source: authors own creation, 2024

Investigating the impact of artificial intelligence on auditing requires an in-depth examination of the existing literature. For this purpose, a bibliometric analysis was performed, selecting the documents from the "Web of Science Core Collection" – a prestigious database in the academic community.

As a result of the initial search, a statistical sample comprising 1,667 scientific publications dating from 1991-2024 was established. The initial selection criteria included terms such as "artificial intelligence", "RPA" (Robotic Process Automation) and "audit/auditing". Due to the transdisciplinary nature of the subject the sample included works from diverse fields such as medicine, chemistry and environmental sciences.

In order to focus on the fields relevant to the subject of the audit assisted by artificial intelligence, an additional filter was applied to the database, narrowing the research area to the categories "Business Economics", "Computer Science" and "Mathematics". This refinement process resulted in a corpus of 794 publications, illustrated in ***Figure no. 2***. The overwhelming majority of these papers (98.61%) are composed in English and represent contributions of 2,721 distinct authors.

Figure no. 2. Database filtering



Source: authors own creation, 2024

To initiate the study, a descriptive bibliometric analysis was conducted to map academic dynamics. This included examining annual publication trends, geographic dispersion of studies, identifying significant papers, as well as identifying the most prolific authors.

In the secondary phase of the research, a co-word analysis was performed according to the structured methodology proposed by Cobo et al. (2011), which facilitated the outlining of a thematic profile for the specified area of interest. This involved extracting the bibliometric network, calculating similarity coefficients and thematic categorization in order to identify dominant nodes. Using the binary counting approach for term co-occurrence analysis, a minimum threshold of five occurrences was set for inclusion of terms in the keyword corpora. Terms that passed this threshold were subsequently evaluated and ranked based on a relevance score, which allowed for the distillation of the most relevant terms. Additionally, a keyword co-occurrence analysis was conducted to measure the intensity of co-occurrence connections and to identify terms with the strongest connections. The result was an illustrative network of major themes and their interrelationships, highlighting keywords as an essential representation of the research content and main interests of the field.

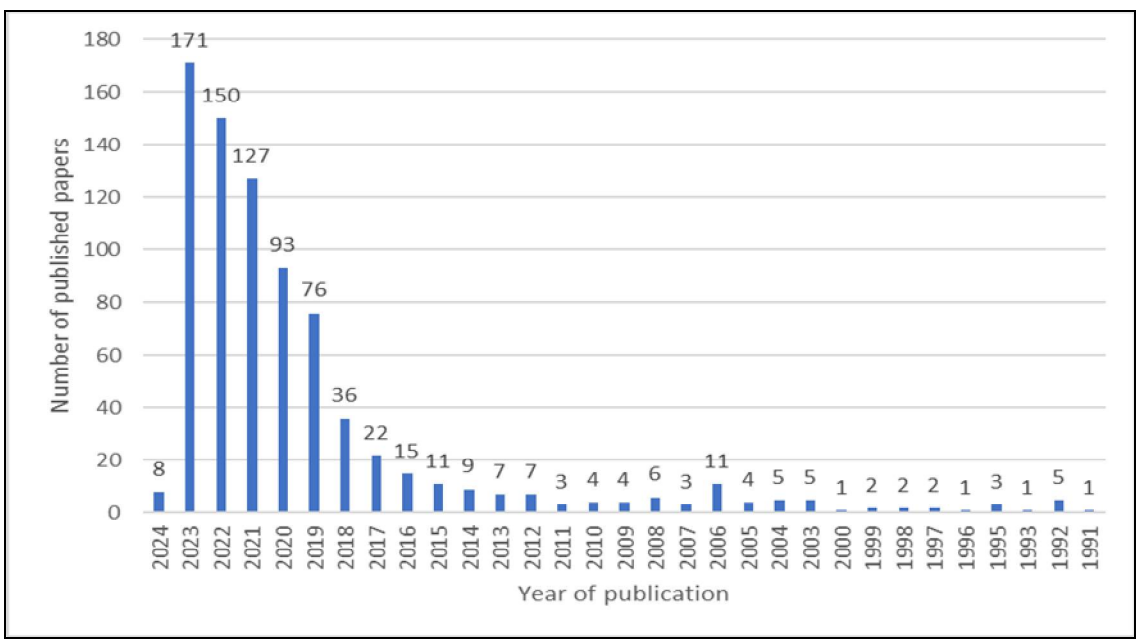
In a historical perspective, bibliographic analysis was inaugurated by Kessler in 1963, defined by the phenomenon in which two publications are considered coupled if both refer to a common third work (Kessler, 1963). This approach involves examining whether the bibliographic structure highlights a set of characteristics that define the intellectual provenance of a work. Thus, bibliographic coupling quantifies the similarity between documents through the prism of the number of shared references (Zupic and Cater, 2018).

To facilitate and visualize the bibliometric data, the VOSviewer software was used, an essential tool for synthesizing and graphically interpreting interconnections in specialized literature.

5. Discussions

Analyzing chronological trends in scientific publications can provide valuable insights into the evolution of scholarly interest in a particular field. As seen in ***Figure no. 3***, a visualization of the annual distribution of publications from the interval 1991-2024 was made, which addresses the key terms previously specified in ***Figure no. 1***, relevant for the analyzed field. This graphical representation highlights the temporal dynamics of research and may indicate changes in thematic focus or intensification of research activities in this sector.

Figure no. 3. The number of articles published and their annual distribution in the period 1991-2024

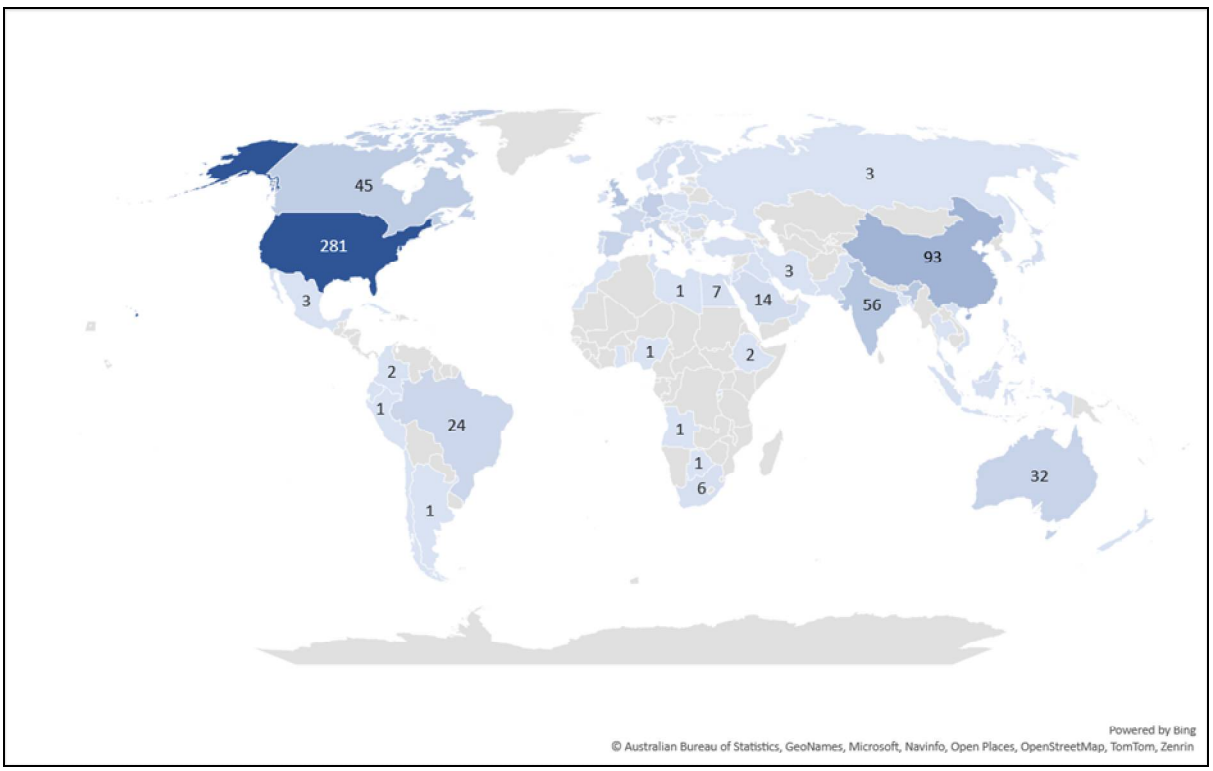


Source: authors own creation, 2024

The temporal analysis covers the period 1991-2024, highlighting a fluctuating trend in the volume of works. A significant increase in publications is observed in recent years, with a peak of 171 papers in 2023, suggesting an intensification of academic interest in the terms. Prior to this peak, the number of publications varied considerably, with a low number of publications in the early years of the analyzed interval, gradually increasing to 150 papers in 2022, after which there was a rapid ascent towards the climax. This development may reflect both progress in the theory and application of auditing concepts and broader research dynamics in interrelated fields.

The geographical distribution of the contributions to the specialized literature on the subject of artificial intelligence in auditing is visualized in ***Figure no. 4***. The map highlights the density of publications by each region, with a significant concentration in North America, indicated by 281 papers published in the United States and 45 in Canada. Attention also extends to Asia, with a prominent presence in China, which accounts for 93 publications, and India, with 56. Australia and Europe also highlight a notable contribution to this field, with 32 and 61 papers respectively in the United Kingdom. This dispersion underlines the global nature of AI-assisted audit research, reflecting the cross-border interest and importance of this topic.

Figure no. 4. Geographical distribution of scientific papers



Source: authors own creation, 2024

Table no. 1 illustrates the ranking of distinguished researchers in the field of study based on their published contributions. These flagship authors are ordered according to their publishing prolificacy, as measured by the total number of papers published in the academic literature, in the specified time frame. Ranking analysis provides insight into the most active and influential voices in thematic research, thereby highlighting a hierarchy based on the volume of knowledge contributed to the existing scientific body.

Table no. 1. The main authors of scientific papers

Author	Number of scientific papers published	Citations
Vasarhelyi, Miklos V.	12	391
Wang, Wei	6	490
Hsu, Ming-Fu	5	25
Sutton, Steve G	5	117
Lv, Zhuo	4	19
Inioluwa Deborah Raji	4	357
Zhang, Chanyuan (Abigail)	4	95
Jatinder Singh	4	45
Arnold, Vicky	4	117

Source: authors own creation, 2024

Vasarhelyi, Miklos V. leads the ranking with an impressive total of 12 scientific publications, which have accumulated 391 citations, underlining his profound impact on the academic community. Wang, Wei, although he published only 6 papers, achieved the highest number of citations, numbering 490, thus demonstrating a remarkable influence and considerable relevance of his research. Similarly, the papers by Hsu, Ming-Fu and Sutton, Steve G, with 5 publications each, reflect a solid contribution to the field with 25 and 117 citations, respectively. Other notable authors such as Lv, Zhuo, Inioluwa Deborah Raji, Zhang, Chanyuan (Abigail), Jatinder Singh and Arnold, Vicky asserted their academic presence with 4 papers each, contributing variously to the body of literature as reflected in their respective number of citations: 19, 357, 95, 45 and 117. This record of editorial activity and citation impact provides a detailed picture of publication dynamics and scholarly influence within the scientific community focused on the subject covered.

Table no. 2. The main publications in which the articles are found

The title of the publication	No. of published articles
Lecture Notes in Computer Science	33
IEEE Access	27
Journal of Emerging Technologies in Accounting	18
AI Society	13
Expert Systems with Applications	13
International Journal of Accounting Information Systems	10
Lecture Notes in Artificial Intelligence	10
Proceedings of the 6th ACM Conference on Fairness Accountability and Transparency (FAccT 2023)	9
Communications in Computer and Information Science	8
Intelligent Systems in Accounting, Finance and Management	8
Proceedings of the 2023 AAAI/ACM Conference on AI, Ethics, and Society (AIES 2023)	7

Source: authors own creation, 2024

A bibliometric investigation of the distribution of publications by journal title reveals a variety of platforms promoting AI research in auditing and accounting. **Table no. 2** catalogs the scientific journals according to the number of articles published, thus highlighting the academic center of knowledge dissemination in this research niche. Lecture Notes in Computer Science leads by far with a total of 33 papers, closely followed by IEEE Access with 27 contributions. They are joined by the Journal of Emerging Technologies in Accounting with 18 articles, indicating a clear predilection for technological innovations in the financial-accounting field. Other significant publications include the AI Society, Expert Systems with Applications, and the International Journal of Accounting Information Systems, each contributing over ten papers. This constellation of journals reflects the diversity and interdisciplinarity of scientific debates, which integrate technical and specialist expertise in shaping the future of the auditing profession. In addition, conferences such as Proceedings of the 6th ACM Conference on Fairness, Accountability, and Transparency (FAccT 2023) and Proceedings of the 2023 AAAI/ACM Conference on AI, Ethics, and Society (AIES 2023) are recognized for their contribution their contribution to the global discussion on the ethical and social impact of artificial intelligence, emphasizing the importance of continued dialogue between technology and audit practices.

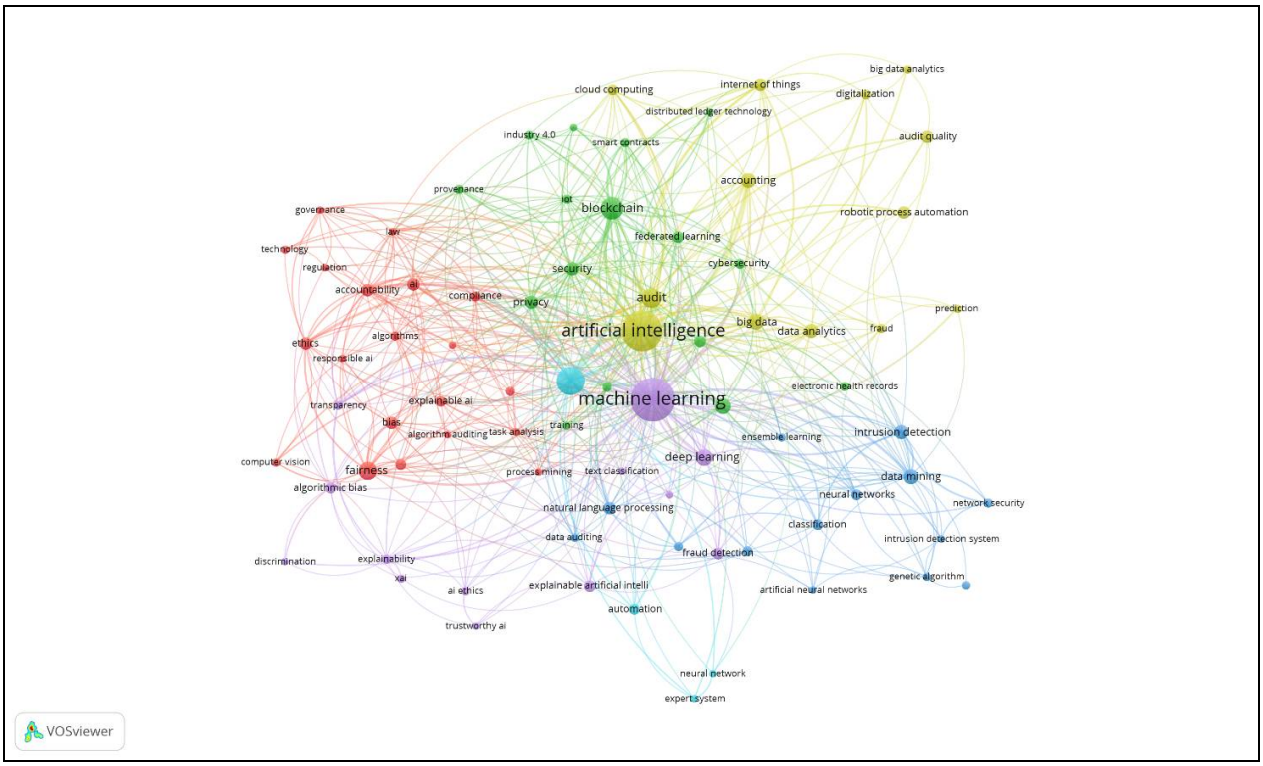
In order to elucidate the degree of interconnection and thematic relevance within the field-specific literature, a co-occurrence bibliometric analysis was implemented. This involved measuring the frequency, co-occurrence and proximity of key terms in the corpus of examined documents. The construction of a co-occurrence network allowed not only the identification and evaluation of connections between terms, but also a comprehensive mapping of the thematic evolution in the field. For this analysis, a selection criterion was established that included terms exceeding a minimum number of five occurrences. Out of a total of 2217 terms identified, 80 met this inclusiveness criterion. The most significant 15 terms, according to their bond strength in the co-occurrence matrix, are detailed in **Table no. 3**.

Table no. 3. The keywords with the highest total link strength from co-occurrence

Keyword	Occurrences	Total Link Strength
machine learning	163	233
artificial intelligence	141	232
auditing	66	108
blockchain	43	84
audit	34	73
security	16	62
big data	22	53
fairness	29	49
accounting	19	48
privacy	16	47
accountability	14	45
data mining	20	40
Internet of things	14	36
data analytics	17	35
anomaly detection	21	33

Source: authors own creation, 2024

Figure no. 5. Keyword analysis by mapping analysis using VOSviewer



Source: authors own creation, 2024

The co-occurrence analysis presented in the visual map generated by VOSviewer in ***Figure no. 5*** reflects the complex and dynamic interconnectedness of key terms in the literature dealing with artificial intelligence and auditing. The map highlights "machine learning" and "artificial intelligence" as central nodes with the highest levels of occurrences and total link strength, underscoring their importance as topics of major interest and points of convergence in current research. Other terms such as "auditing", "blockchain", "audit" and "security" appear as significant nodes, indicating specific subdomains of interest and their interaction with the main concepts of artificial intelligence.

The frequency and linking power of the terms "fairness", "accounting", "privacy" and "accountability" suggest a growing concern for ethical and regulatory aspects in the application of emerging technologies in the financial field. Also, the terms "big data", "data mining", and "Internet of things" are indicators of the technological trends that shape the current audit landscape.

Through this analysis, a picture of the field emerges that not only blends advanced technology with traditional audit processes, but also underscores a move toward accountability, transparency, and security in the digital age.

6. Statistical approach and regressions

Presentation of the statistical modeling and regression analyzes performed

In this study, we applied the linear regression model to assess the relationship between the number of occurrences of keywords (the independent variable) and the number of published scientific papers discussing the usefulness of artificial intelligence in auditing (the dependent variable). Using a data set of 20 observations, we performed statistical analyzes using Microsoft Excel (**Tables no. 4 and 5**).

Table no. 4. Data used for regression

Keyword	The number of occurrences of keywords (x)	The number of published scientific papers discussing the usefulness of artificial intelligence in auditing (y)
machine learning	163	18
artificial intelligence	155	18
auditing	66	18
blockchain	43	1
audit	34	12
deep learning	23	2
big data	22	6
data mining	20	4
accounting	19	7
data analytics	17	8
security	16	0
privacy	16	0
accountability	14	0
internet of things	14	3
ethics	14	4
natural language processing	14	2
robotic process automation	13	9
healthcare	12	0
federated learning	12	0
explainable artificial intelligence	12	4

Source: authors own creation, 2024

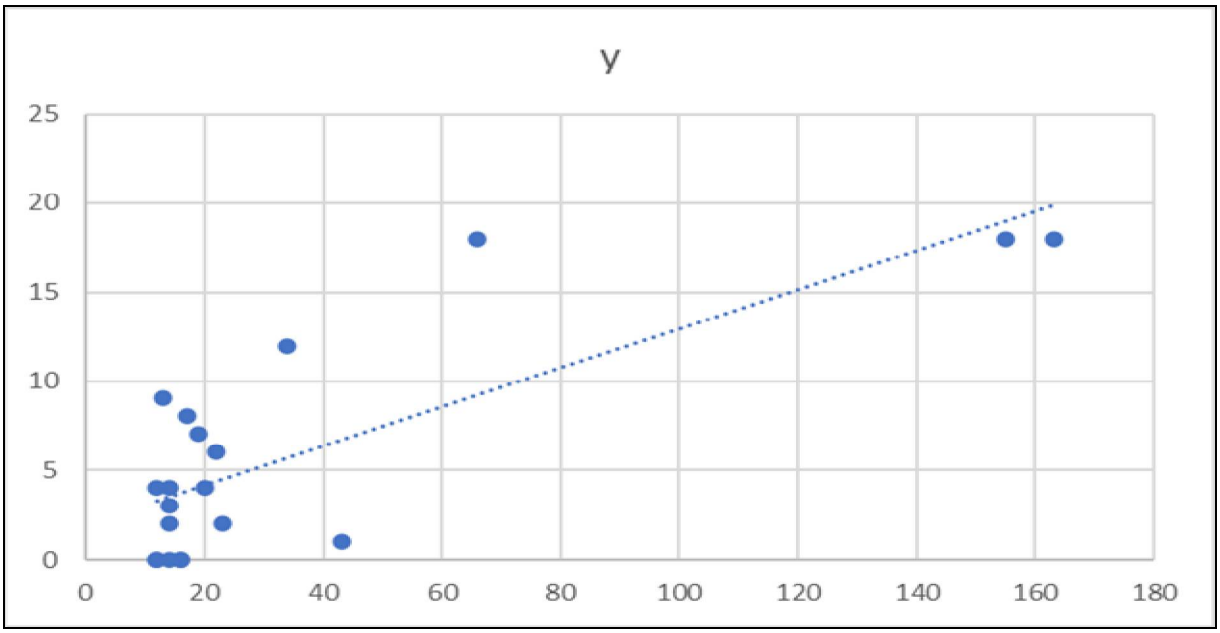
Table no. 5. Result

Regression Statistics						
Multiple R	0.783978					
R Square	0.614622					
Adjusted R Square	0.593212					
Standard Error	3.978216					
Observations	20					
ANOVA						
	df	SS	MS	F	Significance F	
Regression	1	454.3284	454.3284	28.70736	4.31E-05	
Residual	18	284.8716	15.8262			
Total	19	739.2				
	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	1.952278	1.143254	1.70765	0.104891	-0.44961	4.354166
X Variable 1	0.110092	0.020548	5.357925	4.31E-05	0.066923	0.153261

Source: authors own creation, 2024

The multiple correlation coefficient (Multiple R) was calculated at 0.7839, indicating a strong correlation between the two variables. The R-squared of 0.6146 suggests that approximately 61.46% of the variability in the number of papers is explained by keyword frequency. The adjusted R-squared value of 0.5932 reflects the accuracy of the model, adjusted for the number of predictors.

Figure no. 6. Scatterplot and regression line for the number of scientific papers by keyword frequency



Source: authors own creation, 2024

The ANOVA analysis provided an F-statistic of 28.7074, with a significance level (Significance F) of 0.000043, indicating that the model is statistically significant. The coefficient for the independent variable was 0.1101, with a very small p-value, which demonstrates a significant positive relationship between the number of keyword occurrences and the number of papers.

In ***Figure no. 6*** the correlation between the number of occurrences of keywords (on the X-axis) and the number of published scientific papers (on the Y-axis) is visually represented, illustrating the linear trend of the relationship between the two variables.

Interpretation of the results and their connection to the usefulness of artificial intelligence in auditing

Interpretation of the results of the regression analysis underlines the existence of a significant relationship between the use of specific terminology and the frequency of published research in the field of artificial intelligence in auditing. A coefficient of 0.1101 for the independent variable indicates that for each additional unit in keyword frequency, the number of published papers increases by approximately 0.11 papers. This fact suggests that increased attention to specific language and terminology can have a direct impact on the visibility and volume of research in the field.

Although the coefficient of the intercept was not statistically significant, the overall model and the coefficient of the independent variable are significant, thus demonstrating a clear link between the specific scientific discourse and the contribution to the specialized literature. This highlights the significant impact of AI on the audit field and encourages a more keyword-focused approach to advancing research and practice in this emerging space.

7. Challenges and limitations in the use of artificial intelligence in auditing

The bibliometric analysis and statistical results provide a valuable insight into the progress in the adoption of artificial intelligence (AI) in auditing, but also reveal certain challenges and limitations in its implementation.

Audit professionals may be reluctant to adopt AI technology due to concerns about replacing the human

role or the complications it might bring to well-established processes (Perdana et al., 2023).

There is a skills gap between traditional audit knowledge and that required to operate and understand AI-based systems. It requires continuous training and education programs (Kommunuri, 2022).

The results of the regression models suggest a correlation between increasing interest in AI and the number of publications, but cannot establish causality or detail the complex dynamics of AI adoption in audit practices.

Given the accelerated pace of innovation in artificial intelligence, analysis results can quickly become outdated, and statistical models based on historical data may be unable to predict future trends.

These findings point to the need for continuous evaluation and adaptation of both audit processes and the education and training of professionals in the field to effectively respond to the challenges that artificial intelligence brings. It also highlights the need for further research and collaboration between industry, academia and regulators to navigate and optimize the implementation of AI technology in auditing.

8. Conclusions and recommendations

The bibliometric analysis and statistical results provide a detailed picture of the evolution of academic interest in artificial intelligence (AI) in auditing, as well as the contributions and interconnections in this field. Understanding these results can provide valuable insights into the challenges and limitations in implementing AI in auditing.

Analysis of chronological trends shows a significant increase in publications in the field of artificial intelligence in auditing in recent years, with a peak observed in 2023. This growth indicates an intensification of academic interest and an increased focus on its use in auditing.

The geographical distribution of contributions to the literature shows a significant concentration in North America, China, India and Europe. This suggests that these regions are at the forefront of AI innovation and research in auditing.

Identifying the leading authors and most influential publications provides insight into the directions and impact of research in this field. The works of these authors represent significant and influential contributions to the existing body of knowledge.

Co-occurrence analysis of key terms reveals important research themes and trends, such as "machine learning", "auditing", "security" and "privacy". They reflect the current concerns and development directions in the field of artificial intelligence in auditing.

Linear regression analysis shows a significant relationship between keyword frequency and the number of published papers. This suggests that increased attention to specific language and terminology can directly influence the visibility and volume of research in the field.

However, it is important to recognize that bibliometric analysis and linear regression have certain limitations. For example, these methods may miss aspects of the complexity and real context of AI implementation in auditing.

In conclusion, the implementation of artificial intelligence in auditing has the potential to bring significant benefits, but it is essential to understand the challenges and limitations associated with it. It is important to continue research and development in this area to maximize the impact and effectiveness of using artificial intelligence in auditing.

The use of artificial intelligence in auditing brings with it numerous advantages, including improving the efficiency of the audit process, effective fraud detection, predictive analysis and adaptability to specific client needs. These advantages demonstrate the considerable potential of artificial intelligence technologies to transform and improve audit practices in the digital age.

REFERENCES

1. Aboud, A. and Robinson, B. (2022), Fraudulent financial reporting and data analytics: an explanatory study from Ireland, *Accounting Research Journal*, Vol. 35, No. 1, pp. 21-36. https://doi.org/10.1108/ARJ-04-2020-0079

2. Adebiyi, Olubukola Omolara, (2023) Exploring the Impact of Predictive Analytics on Accounting and Auditing Expertise: A Regression Analysis of LinkedIn Survey Data (November 4). Available at SSRN: https://ssrn.com/abstract=4626506 or http://dx.doi.org/10.2139/ssrn.4626506

3. Adeoye, Oluwasegun & Akintoye, Rufus & Theophilus, Anaekenwa & Theophilus, Aguguom & Olagunju, Olubusola. (2023). Artificial intelligence and audit quality: Implications for practicing accountants. *Asian Economic and Financial Review*. Vol. 13. 756-772. 10.55493/5002.v13i11.4861.
4. Agarwal, R., & Dhar, V. (2018). Big Data, Data Science, and Analytics: The Opportunity and Challenge for IS Research. *Information Systems Research*, 25(3), 443-448.
5. Pascal A. Bizarro, Ph.D., CISA, Emily Crum and Jake Nix, CISA, CPA. (2019). The Intelligent Audit. *ISACA Journal*/Issues 2019/Volume 6
6. Chassignol, M., Aleksandr K., Alexandra K., and Anna B. (2018) Artificial Intelligence trends in education: A narrative overview. *Procedia Computer Science* 136: 16–24
7. Cobo, M., Lopez-Herrera, A.G., Herrera-Viedma, E., & Herrera, F. (2011). Science mapping software tools: review, analysis, and cooperative study among tools. *Journal of the American Society for Information Science and Technology*, 62.
8. Gao Yubin, Han Lirong (2021). Implications of Artificial Intelligence on the Objectives of Auditing Financial Statements and Ways to Achieve Them, *Microprocessors and Microsystems*, https://doi.org/10.1016/ j.micpro. 2021.104036.
9. Gepp, A., Linnenluecke, M.K., O'Neill, T.J. and Smith, T. (2018), Big data techniques in auditing research and practice: Current trends and future opportunities, *Journal of Accounting Literature*, Vol. 40 No. 1, pp. 102-115. https://doi.org/10.1016/j.acclit.2017.05.003
10. Giraud-Carrier, C., & Dunham, M. (2018). Machine Learning for Financial Market Prediction. *Journal of Financial Data Science*, 1(1), 5-20.
11. Hasan, A. (2022) Artificial Intelligence (AI) in Accounting & Auditing: A Literature Review. *Open Journal of Business and Management*, 10, 440-465. doi: 10.4236/ojbm.2022.101026.
12. Feiqi Huang, Miklos A. Vasarhelyi, 2019, Applying robotic process automation (RPA) in auditing: A framework, *International Journal of Accounting Information Systems*, Volume 35,2019,100433, ISSN 1467-0895, https://doi.org/10.1016/ j.accinf.2019.100433.
13. Kaplan, A., and Michael H. (2019). Siri, Siri, in my hand: Who's the fairest in the land? On the interpretations, illustrations, and implications of Artificial Intelligence. *Business Horizons* 62: 15–25
14. Kessler, M. (1963). Bibliographic coupling between scientific papers. *American Documentation*, vol. 14, issue 1, 10-25
15. Kommunuri, J. (2022), Artificial intelligence and the changing landscape of accounting: a viewpoint, *Pacific Accounting Review*, Vol. 34 No. 4, pp. 585-594. https://doi.org/10.1108/PAR-06-2021-0107
16. Munoko, Ivy & Brown-Liburd, Helen & Vasarhelyi, Miklos. (2020). The Ethical Implications of Using Artificial Intelligence in Auditing. *Journal of Business Ethics*. 167. 10.1007/s10551-019-04407-1.
17. Peng, C. and Tian, G. (2023) Intelligent auditing techniques for enterprise finance. *Journal of Intelligent Systems*, Vol. 32 (Issue 1), pp. 20230011. https://doi.org/10.1515/jisys-2023-0011
18. Perdana Arif, Lee W. Eric, Kim Chu Mui (2023). Prototyping and implementing Robotic Process Automation in accounting firms: Benefits, challenges and opportunities to audit automation. *International Journal of Accounting Information Systems*. Volume 51.2023
19. Seethamraju, Ravi & Hecimovic, Angela. (2020). Impact of Artificial Intelligence on Auditing -An Exploratory Study. *26th Americas Conference on Information Systems (AMCIS 2020).8.* https://aisel.aisnet.org/amcis2020/accounting_info_systems/accounting_info_systems/8
20. Vasarhelyi, M. A., & Kogan, A. (2017). Continuous auditing. In *Accounting Information Systems* (pp. 479-498). Springer, Cham.
21. Velázquez, E., & Antonio, M. R. (2018). The use of artificial intelligence in auditing: A bibliometric approach. *Journal of Intelligent & Fuzzy Systems*, 35(2), 1361-1370.
22. Zhang Chanyuan (Abigail), Cho Soohyun, Vasarhelyi Miklos, (2022). Explainable Artificial Intelligence (XAI) in auditing. *International Journal of Accounting Information Systems*. Volume 46,
23. Zupic, I., & Cater, T. (2018). Bibliometric methods in management and organization. *Organizational Research Methods*, 18(3)