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ARTIFICIAL INTELLIGENCE AND ITS ROLE IN THE DIGITAL TRANSFORMATION OF THE FINANCIAL SECTOR: SYSTEMATIC REVIEW

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ABSTRACT: The objective of this state-of-the-art article is to explore the interface between artificial intelligence (AI) and how it has transformed the digitization of financial institutions over the last six years. For the analysis, a corpus of 20 articles extracted from the Scopus and Web of Science databases was used, adhering to the PRISMA Statement (Preferred Reporting Items for Systematic Reviews and Meta-Analyses). It was found that the arrival of AI in banking has been a disruptive event, due to the strengthening of cybersecurity conventions and the traceability and accuracy of user profiles. However, further research is needed on the impact that artificial intelligence will have on banking in less developed countries, as this trend is likely to widen the technological gap with the First World, compounded by the lack of qualified personnel to manage new technologies ethically and responsibly. It is concluded that, despite the remarkable results achieved by the application of AI advances, pre-existing differences mustn't be increased, but rather reduced.

Keywords: digitization, globalization, artificial intelligence, tertiary sector.

INTRODUCTION

In 2016, the World Economic Forum, a gathering of leading figures in the global economy, stated that civilization had entered the Fourth Industrial Revolution. However, in Peru, AI is difficult to access for some segments of the tertiary sector. Therefore, it makes sense to consider public funding; in fact, such a policy will help improve business management efficiency (León Gutiérrez et al., 2022; Pacheco, 2023).

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In this research, the premises of the conceptual framework are based on the theory of socio-technical systems to explain artificial intelligence and on the theory of disruptive innovation for digital transformation. The first perspective argues that, for implementation to have the desired organizational impact, it is necessary to restructure work teams, manage change, and develop new skills (Vargas, 2021). On the other hand, disruptive innovation theory highlights the impact of cutting-edge technology in democratizing access to financial services (Sánchez et al., 2023).

Consequently, the results obtained point to a provisional conclusion: the competitiveness and sustainability of financial institutions ultimately depend on their ability to adapt to digital transformation. There are business opportunities that are rendering the traditional models in the financial sector obsolete, which have prevailed over the last 20 or 30 years (Pandey and Sergeeva, 2020). However, some problems are apparent, such as the technological gap between institutions with greater customer coverage and those with less reach. This prevents fair competition and creates a mismatch between technological innovations and compliance with the regulatory framework that ensures the security and reliability of the financial system. For example, much clearer and more direct regulations are needed regarding the custody of information and the minimization of errors in already automated decisions. These conditions, to a certain extent, slow down the implementation of certain digital possibilities, which does not convince users (Chahal, 2023).

Previous studies have reported that AI influences various contexts. In Romania, Andronie et al. (2023) conclude that big data has enabled the development of personalized financial products in the financial services industry. In the US, Chahal (2023) found that the introduction of AI and RPA has significantly improved customer satisfaction. In a similar context, Pandey and Sergeeva (2022) demonstrated that AI in Russia has opened the debate on regulatory and ethical issues. In India, Mittala (2020) adds that hybrid systems combining neural networks with soft computing algorithms improve accuracy in risk prevention.

After an initial search, a lack of review articles has been identified on how artificial intelligence is opening up business opportunities and bringing financial institutions closer to emerging markets. In addition, there is a lack of studies on how nation-states are adapting

their regulatory frameworks to AI. Similarly, it will be interesting to analyze how financial institutions are responding to the technology gap and connectivity issues in most countries in the southern hemisphere.

The research question is as follows: How has artificial intelligence impacted the digital transformation of the financial sector over the last six years, from 2019 to 2024? In turn, four specific questions are posed: How is digital disruption redefining the financial sector? How are artificial intelligence and machine learning driving the development of banking? How does artificial intelligence contribute to the analysis and management of large volumes of data in the financial sector? How can artificial intelligence prevent fraud and strengthen cybersecurity? Therefore, the overall objective is to explore how artificial intelligence is impacting the digital transformation of the financial sector between 2019 and 2024.

METHODOLOGY

This research consists of a comprehensive review of the research conducted on a specific topic, specifying the location, date of publication, title of the resource, methodological design, and main contribution. Also known as a Systematic Literature Review (SLR), its objective is to provide evidence for decision-making based on verifiable evidence (Quispe et al., 2021).

The PRISMA protocol has been used, which consists of a series of steps designed to ensure rigor and transparency in an SLR. This protocol establishes standardized criteria for the identification, screening, eligibility, and inclusion of studies, in addition to requiring the presentation of a flowchart documenting each stage of the process. Its use is common among researchers, as it ensures that the review provides a high-quality state of the art, based on systematic and clearly traceable procedures (Liberati et al., 2009).

Each of the questions presented in Table 1 serves as a milestone or mandatory reference point for an adequate evaluation of the bibliographic production.

In the systematic review analysis, five research questions (RQs) were formulated, which allowed for the extraction, synthesis, and comparison of findings to be structured. RQ1

focused on identifying studies published between 2019 and 2024, to define the recent landscape of scientific production on artificial intelligence in the financial sector. RQ2 sought to understand how digital disruption is redefining processes, business models, and competitive dynamics in the financial industry, with a special emphasis on the incorporation of emerging technologies. RQ3 analyzed how artificial intelligence (AI) and machine learning (ML) are driving the development of banking, both in terms of service optimization and operational efficiency.

Likewise, RQ4 examined the contribution of AI to the analysis and management of large volumes of data, a crucial aspect for strategic decision-making and the personalization of financial services. And RQ5 focused on exploring how artificial intelligence contributes to fraud detection and the strengthening of cybersecurity, two priority areas in an increasingly complex digital environment. These questions guided the organization of the results and allowed for a systematic interpretation of the contributions of the included literature.

Table 1

Research questions

Codes	Denominaciones
RQ1	Which studies were selected between 2019 and 2024?
RQ2	How is digital disruption redefining the financial sector?
RQ3	How are AI and ML driving the development of banking?
RQ4	How does artificial intelligence contribute to the analysis and management of large volumes of data in the financial sector?
RQ5	How can fraud be predicted and cybersecurity be developed using artificial intelligence?

Selection criteria

To ensure methodological consistency and thematic relevance of the studies included in the systematic review, inclusion and exclusion criteria were defined to rigorously filter the scientific evidence. These criteria were established considering the central objective of the

research, the time period of analysis, the type of methodological design, access to the full text, and the direct relationship of the study to the financial sector. In this way, the criteria ensured that only research providing relevant, recent, and applicable empirical evidence to the phenomenon analyzed was included (see Table 2).

Table 2

Selection criteria

Criteria	Code	Description
Inclusion	IC1	Research with experimental design published between 2019 and 2024.
	IC2	Causal studies published between 2019 and 2024
	IC3	The sample includes companies in the financial sector
	IC4	Any language of publication
	IC5	Full and available articles
Exclusion	EC1	Publications before 2019
	EC2	Research with a simple descriptive design
	EC3	Publications that include companies outside the financial sector in their sample
	EC4	Articles from secondary and tertiary studies
	EC5	Incomplete or unavailable articles

Sources of information

For greater consistency and reliability of data, information sources such as Scopus and Web of Science were used. The selection of these scientific databases is justified because both are internationally recognized for their rigorous editorial curation, the exclusive inclusion of high-impact, peer-reviewed journals, and their broad multidisciplinary coverage, which ensures the retrieval of valid, high-quality scientific literature. In addition, they are considered the main references for conducting systematic reviews, as they allow for the retrieval of relevant, up-to-date, and highly cited studies, thus ensuring the robustness of the bibliographic analysis.

Search strategy

During the search process, various strategies were used, such as employing keywords obtained from thesauri. In addition, Boolean operators such as “AND” and ‘OR’ were

applied, considering the years of publication of each article belonging to the various continents. In order to ensure the integrity of the data set, the results were imported into the Mendeley bibliographic manager, which allows duplicate records to be automatically identified and eliminated using its "Check for duplicates" function. This tool compares titles, authors, years, and metadata, facilitating the detection of matches and ensuring that only unique and valid references are retained for the respective analysis (see Table 3).

Table 3

Search strings used

Search Equations	Description
Basic Equation	("Inteligencia artificial" OR "IA" OR "aprendizaje automático" OR "machine learning") AND ("transformación digital" OR "digitalización" OR "innovación digital") AND ("sector financiero" OR "bancos" OR "instituciones financieras" OR "fintech" OR "servicios financieros"
Equation in Innovation	("algoritmos" OR "sistemas inteligentes" OR "redes neuronales") AND ("innovación digital" OR "disrupción digital" OR "modernización tecnológica") AND ("sector bancario" OR "instituciones de crédito" OR "fintech")
Equation in Digital Transformation	("Inteligencia artificial" OR "IA" OR "machine learning") AND ("transformación digital" OR "digitalización") AND ("sector financiero" OR "bancos" OR "fintech") NOT ("sector salud" OR "educación")
Equation in Advanced Automation	("automatización avanzada" OR "inteligencia artificial" OR "aprendizaje automático") AND ("cambio digital" OR "estrategia digital" OR "adopción tecnológica") AND ("instituciones financieras" OR "servicios financieros" OR "fintech")

As detailed in the table, four thematic search equations were designed (basic search, innovation, digital transformation, and advanced automation). However, they were not

applied simultaneously; each equation was used iteratively and complementarily to refine the results, verifying which one retrieved recent and relevant evidence. To ensure comprehensiveness, the search equations were adapted to the characteristics of each scientific database. That is, in the Scopus database, searches were performed in the TITLE-ABS-KEY fields, which include the title, abstract, and keywords of the articles. The general equation used in Scopus is shown below:

Scopus (TITLE-ABS-KEY):

("inteligencia artificial" OR "IA" OR "machine learning" OR "aprendizaje automático") AND ("transformación digital" OR "digitalización" OR "innovación digital") AND ("sector financiero" OR "bancos" OR "instituciones financieras" OR "fintech")

Regarding the use of the Web of Science scientific database, the equations were applied in the Topic (TS) field, considering the title, abstract, author keywords, and KeyWords Plus. The general equation used was:

Web of Science (TS):

("artificial intelligence" OR "machine learning" OR "deep learning") AND ("digital transformation" OR "digitalization") AND ("financial sector" OR "banking" OR "fintech")

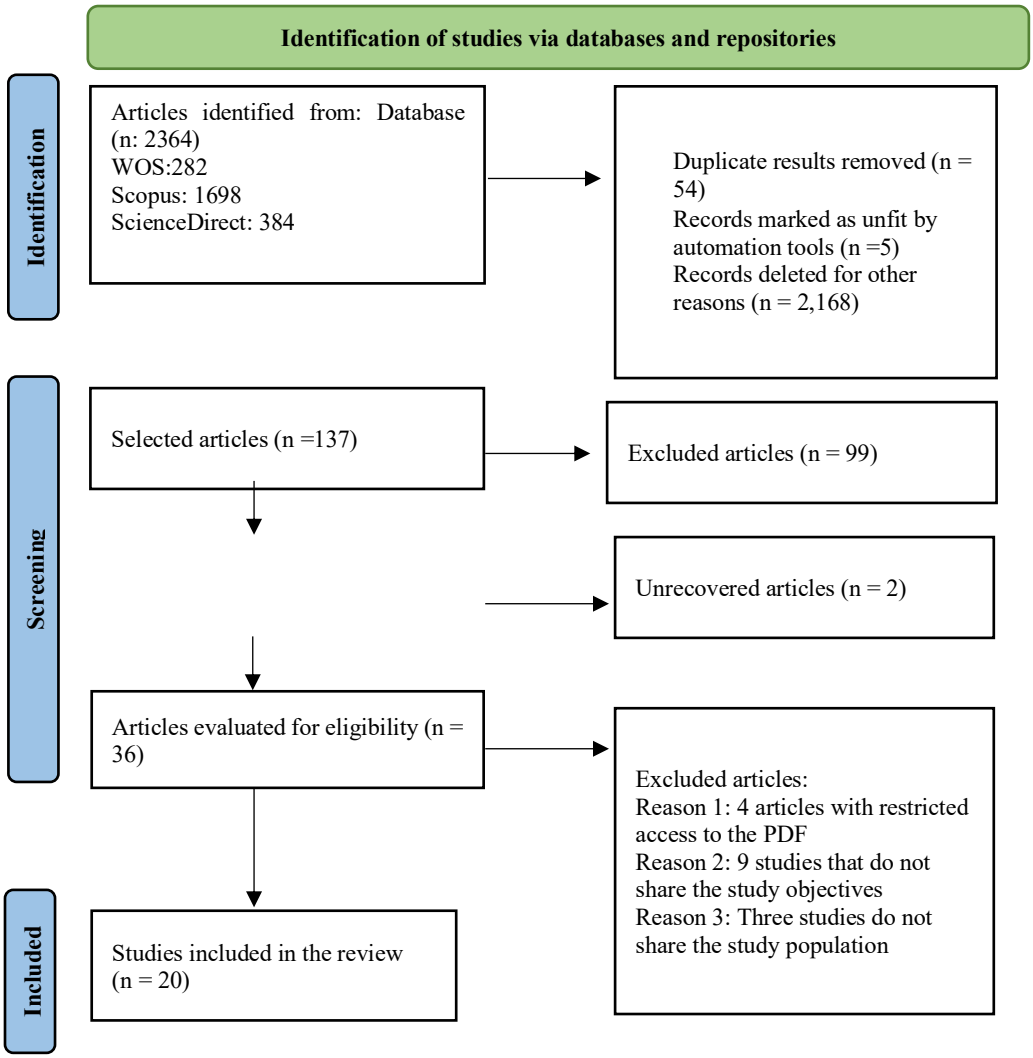
The specific equations shown in the table were used as secondary variants to expand or refine the results when the general equation retrieved insufficient or highly heterogeneous literature. The records obtained from all searches were completed, eliminating duplicates using the Mendeley manager before the final analysis procedure.

Study selection process

Study selection process

Figure 1

Flowchart of the study selection process



About the bibliometric analysis

A sample size of 1,314 studies was selected using VOS Viewer software. Figure 2 shows the term co-occurrence network derived from the bibliometric analysis performed on n = 1,314 records. The clusters identified reveal the most researched topics at the intersection of AI and the financial sector. Consequently, the relevance and interconnections between the various thematic elements can be observed:

Figure 2

Network visualization

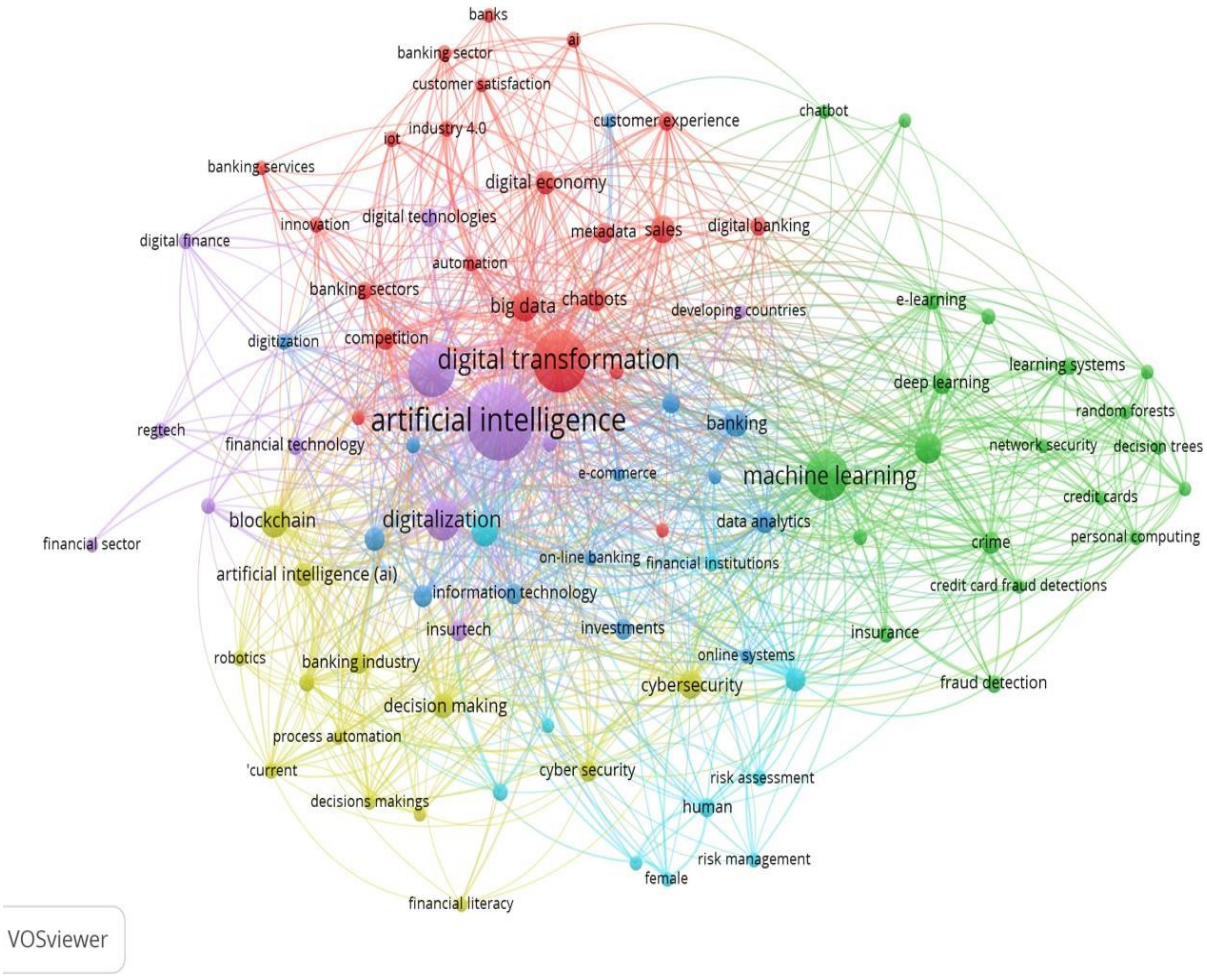


Figure 2 shows nodes grouped in red, green, and blue. This was interpreted as follows:

- Blue node group: this cluster contains the largest node, although with fewer participants. The main topics are “digitalization,” “financial institutions,” “data analytics,” “online banking,” among others.
- Red node group: this group is one of the groups with the most nodes and has the second most popular topic, “digital transformation,” “big data,” “chatbots,” “automation,” and “metadata.”

- Green node group: the most prominent point focuses on the topic of “machine learning,” followed by “deep learning,” “e-learning,” “network security,” and “learning systems.”

Figure 3 shows the overlay map generated by VOSviewer from the bibliometric analysis of the selected document collection. This representation allows us to observe the temporal evolution of the most frequent terms in the literature, as well as their distribution within the identified thematic clusters. The colors reflect the average year of appearance of each term, which makes it easier to identify emerging concepts and recent trends in research on artificial intelligence applied to the financial sector. The behavior associated with the color yellow is particularly interesting, as it reflects a significant increase in the number of scientific studies on the subject.

Figure 3

Overlay visualization

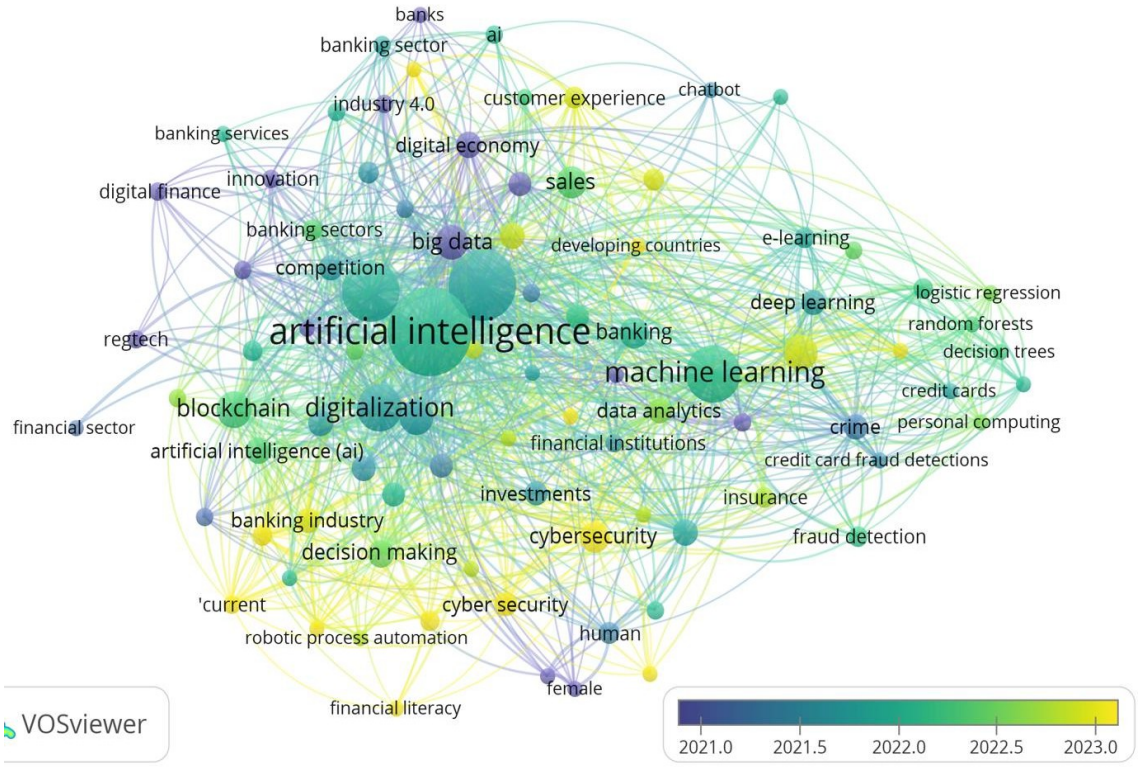


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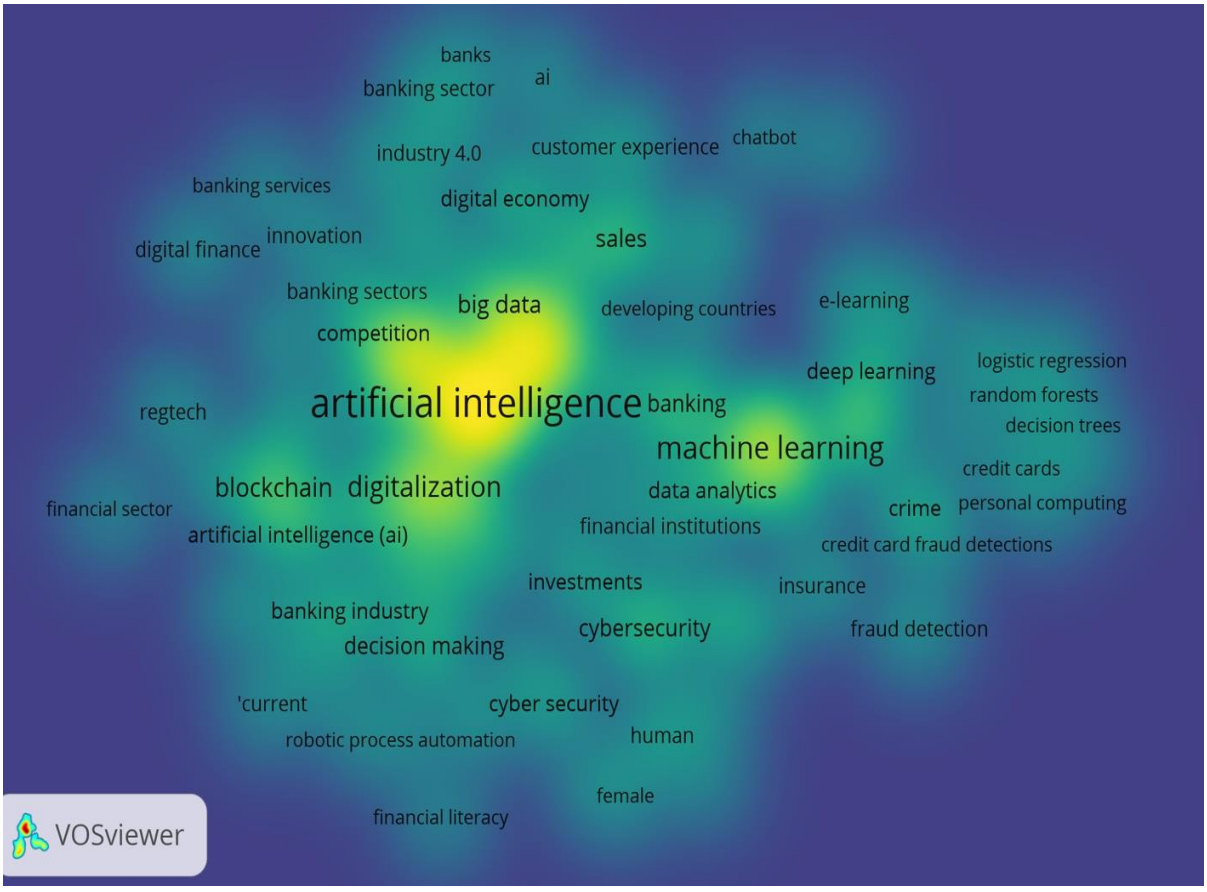
Figure 4 shows the density visualization generated by VOSviewer, which allows us to identify the most frequent and relevant terms in the analyzed literature. The areas in yellow tones indicate a high concentration of publications associated with central concepts such as artificial intelligence, machine learning, digitalization, and big data. In contrast, the lighter green areas reflect terms with lower intensity, although equally linked to the financial ecosystem, such as banking sectors, competition, and fintech. This distribution shows that the integration of digital processes in the financial sector is not only broad and cross-cutting but also irreversible, positioning artificial intelligence as a key driver of innovation and competitiveness in the industry.

Figure 4

Density visualization



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RESULTS

The basic characteristics of the 20 studies included in the SLR (author/year, journal, title, and database of origin) are summarized below. Table 4 identifies the geographical distribution, technologies studied, and methodological approach of the selected evidence.

RQ1: Which studies were selected between 2019 and 2024?

Table 4

Studies included in the systematic review (2019-2024)

Authors/Year of Publication	Journal/Conference	Title of the research	Database
Ajigini and Chinamasa (2023)	Information Resources Management Journal	Modelling digital transformation within the financial sector: A South African perspective	Web of Science
Wang and Yu (2023)	International Journal of Information Technologies and Systems Approach	Supply chain resources and economic security based on artificial intelligence and blockchain multi-channel technology	Web of Science
Mavlutova et al. (2020)	Studies of Applied Economics	Financial sector transformation in the era of digitalization	Web of Science
Wang and Zhao (2022)	Mobile Information Systems	Digital economy meets artificial intelligence: forecasting economic conditions based on big data analytics	Web of Science
Yi et al. (2023)	IEEE Access	Artificial intelligence in accounting and finance: Challenges and opportunities	Web of Science
Nametala et al. (2023)	Computational Economics	Use of econometric predictors and artificial neural networks for the construction of stock market investment bots	Web of Science

Gómez et al. (2022)	Tripodos	Bitcoin investment strategies based on google trends and AI models	Web of Science
Zhou (2022)	Journal of Environmental and Public Health	The application trend of digital finance and technological innovation in the development of green economy	Web of Science
Yan (2023)	Applied Artificial Intelligence	Research on financial field integrating artificial intelligence: application basis, case analysis, and SVR model-based overnight	Web of Science
Kumar et al. (2023)	Information Systems Frontiers	Artificial intelligence and Blockchain integration in business: Trends from a bibliometric-content analysis	Web of Science
Shanmuganathan (2020)	Journal of Behavioral and Experimental Finance	Behavioural finance in an era of artificial intelligence: Longitudinal case study of robo-advisors in investment decisions	Web of Science
Wang et al. (2023)	Resources Policy	Economic analysis of sustainable exports value addition through natural resource management and artificial intelligence	Web of Science
Al-Hawamdeh and Alshaer (2022)	Journal of Asian Finance	Artificial intelligence applications as a modern trend to achieve organizational innovation in Jordanian commercial banks	Web of Science
Ladeira et al. (2024)	Service Industries Journal	Big data analytics and the use of artificial intelligence in the services industry: a meta-analysis	Scopus
Dubey et al. (2020)	International Journal of Production Economics	Big data analytics and artificial intelligence pathway to operational performance under the effects of entrepreneurial orientation and environmental dynamism: A study of manufacturing organisations	Scopus

Mills et al. (2024)	Discover Artificial Intelligence	A cloud-based architecture for explainable Big Data analytics using self-structuring Artificial Intelligence	Scopus
Alghamdi and Agag (2023)	Sustainability	Boosting innovation performance through big data analytics powered by artificial intelligence use: An empirical exploration of the role of strategic agility and market turbulence	Scopus
Saleh and Mishra (2024)	Journal of Cybersecurity and Information Management	The impact of AI-based cyber security on the banking and financial sectors	Scopus
Mishra (2023)	Applied Sciences	Exploring the impact of AI-based cyber security financial sector management	Scopus
Chitimira et al. (2024)	Potchefstroom Electronic Law Journal	Leveraging artificial intelligence to combat money laundering and related crimes in the south african banking sector	Scopus

Table 5 summarizes the findings on how digital disruption is redefining the financial sector, organized by author and main contributions.

RQ2. How is digital disruption redefining the financial sector?

Table 5

Digital disruption

Authors/Year of Publication	Digital disruption	Changes in the financial sector
Ajigini and Chinamasa (2023)	Institutions adopted technologies such as blockchain and mobile banking, but faced operational barriers. Organizational culture proved to be key to the transformation.	FinTech companies improved financial inclusion with personalized products, although institutions faced operational challenges that hindered full digitization.

Mavlutova et al. (2020)	New business models and value chains, driven by technologies such as artificial intelligence, create efficient digital ecosystems.	FinTech companies promoted innovation and collaborated competitively with banks, driving investment in payments and loans.
Wang and Zhao (2022)	Machine learning is designed to show the possibility of bankruptcy for small businesses, while vector support teams and neural networks have been used to make predictions about prices in financial markets.	Advances in machine learning make it possible to predict small business bankruptcies using simple and complex models.
Yi et al. (2023)	Processes were simplified, resulting in greater operational efficiency. In addition, key processes such as fraud prevention, portfolio management, and financial accounting were optimized.	AI and ML optimized financial processes, improving efficiency and risk management.
Nametala et al. (2023)	Digital disruption has transformed the financial sector, incorporating artificial neural networks into econometric models and improving the prediction of market volatility.	Hybrid AI strategies improved prediction and outperformed indices in certain periods.
Gómez et al. (2022)	The document analyzes digital disruption in the financial sector and highlights InvestMood Fintech 2, which uses big data and AI to assess investor sentiment.	Algorithmic trading systems based on AI and Google Trends demonstrated greater profitability, highlighting the influence of sentiment and the effectiveness of systems based on search trends.
Zhou (2022)	Inclusive financing for technology companies promotes more efficient operations and supports technological innovation.	Information asymmetry is reduced, and business development is promoted. Technologies such as big data and blockchain optimize the customer experience.
Yan (2023)	Services are personalized and optimize data processing and risk management strategies.	Artificial Intelligence has transformed microfinance and wealth management into smarter and more accessible solutions.

Kumar et al. (2023)	AI and blockchain have enabled much more effective investment strategies. In addition, their assistance is crucial for operations that are increasingly less vulnerable to criminal activity.	AI has enabled credit assessment in some emerging economies to have the lowest possible margin of error.
Shanmuganathan (2020)	Robo-advisors are contributing to digital services, making them more personalized.	Models such as B2B and B2B2C have helped to reduce costs and design much more individualized proposals.
Wang et al. (2023)	Economic processes are being reshaped, consolidating added value in global trade.	Digital disruption supports informed policy decisions.
Al-Hawamdeh and Alshaer (2022)	The possibilities opened up by mobile banking have improved ongoing support and peer-to-peer lending.	Artificial intelligence and machine learning improve risk assessment and fraud detection. While the health emergency has accelerated remote working and digital collaboration, open banking encourages innovation.

The selected studies agree on several basic ideas about the impact of digital disruption on the financial sector. These include automation, service personalization, improved fraud detection, and the innovative role of financial technology (Ajigini and Chinamasa, 2023; Kumar et al., 2023; Mavlutova et al., 2020; Yan, 2023; Yi et al., 2023). However, differences can be observed in the specific technological approach, geographical market analysis, and innovation adopted. While some studies focus on process optimization and operational improvement (Al-Hawamdeh and Alshaer, 2022; Nametala et al., 2023; Wang and Zhao, 2022; Wang and Yu, 2023), others highlight the creation of new financial products and models, particularly in emerging economies such as Brazil (Nametala et al., 2023) and South Africa (Ajigini and Chinamasa, 2023). These contrasts provide a broader view of how digital disruption is redefining the financial sector around the world, depending on the technologies used and the context in which they are implemented.

The following table provides details in response to RQ3. How are artificial intelligence and machine learning driving the development of banking?

Table 6

Development of banking thanks to AI

Authors/Year of Publication	Banking development
Ajigini and Chinamasa (2023)	They have strengthened banking services in South Africa, promoting innovation in digital payments, insurance, loans, and wealth management. These technologies have accelerated digital transformation and improved business models and financial services.
Wang and Yu (2023)	They have improved banking processes, automated repetitive tasks, and improved operational efficiency. The same has happened with product quality, technological innovation, and operating costs have decreased, while economic stability and global advantages have increased.
Mavlutova et al. (2020)	They have transformed banking by personalizing service, optimizing routine tasks through RPA, reducing costs, and improving efficiency. These technologies have also improved risk management, enabling innovations such as smart contracts and P2P lending to users.
Wang and Zhao (2022)	They have transformed the banking sector through models such as xgboost and dbn-svm, improving the accuracy of bankruptcy prediction and risk management. The analysis of a huge volume of data is plausible evidence for decision-making. Process automation and advanced models have brought efficiency and credit assessment.
Yi et al. (2023)	They have transformed the banking sector by automating key processes such as fraud detection, credit risk management, and automated trading. All of this has led to greater market forecasting and operational efficiency.
Nametala et al. (2023)	They are transforming the banking sector by developing investment tools that improve business strategy. This enables profit analysis and strategic decision-making. Promising opportunities are identified and market changes are responded to efficiently, significantly outperforming conventional methods in terms of profitability and risk management.

AI and machine learning have transformed the banking sector by automating key processes (Kumar et al., 2023; Wang and Yu, 2023; Yan, 2023; Yi et al., 2023), personalizing financial products (Shanmuganathan, 2020), and improving the customer experience (Al-Hawamdeh and Alshaer, 2022; Gómez et al., 2022; Kumar et al., 2023; Nametala et al., 2023; Wang and Yu, 2023; Yi et al., 2023; Yan, 2023; Zhou, 2022). These technologies have not only reduced operating costs (Ajigini and Chinamasa, 2023) and improved efficiency, but have also enabled banking institutions to offer more personalized and secure services.

Continuing with the development of RQ4. How does artificial intelligence contribute to the analysis and management of large volumes of data in the financial sector? The answer is detailed below.

Table 7

Data management in the financial sector using AI

Authors/Year of Publication	Data management
Ladeira et al. (2024)	Artificial Intelligence allows you to process data quickly, increase operational efficiency, predict future behavior, and improve competitive advantage.
Dubey et al. (2020)	AI facilitates the interpretation of complex information and the development of dynamic capabilities. With big data analysis, operational performance, product creation, quality, and cost reduction are improved.
Mills et al. (2024)	Artificial intelligence has provided real-time information, allowing investors the possibility of higher rates of return. Technologies such as Explainable Artificial Intelligence (XAI) and Self-Supervised Artificial Intelligence (SSAI) will improve the transparency and flexibility of analysis.
Alghamdi and Agag (2023)	They facilitate predictive analysis, convert raw data into strategic insights, and increase the resilience of financial institutions to market changes. In addition, available financial product innovations are aligned so that customers have more choices. The market then increases its efficiency.

As for the differences between the studies cited, these lie in how artificial intelligence is integrated into financial data management. In this regard, Mills et al. (2024) have referred to innovative aspects such as explainable AI and self-organizing AI. However, this has not yet

been sufficiently addressed in other publications. Where there is agreement is that AI has revolutionized the analysis and management of large amounts of information in the financial sector (Ladeira et al., 2024), increasing the accuracy, speed, and capabilities of corporations (Dubey et al., 2020; Mills et al., 2024). In turn, more informed and efficient decision-making is now a reality (Alghamdi and Agag, 2023). On the other hand, there are differences in terms of specific technological mechanisms not addressed by other studies, such as explained artificial intelligence, self-organizing artificial intelligence, and cloud computing, which are highlighted by Mills et al. (2024), although they are not treated similarly in the other studies analyzed. These differences reflect the different ways in which financial institutions can put artificial intelligence into practice to meet the challenge of big data analysis, according to their needs.

The following table answers RQ5. How can fraud be prevented and cybersecurity developed through artificial intelligence?

Table 8

Cybersecurity through AI

Authors/Year of Publication	Data management
Yi et al. (2023)	Artificial Intelligence is dramatically improving fraud detection and cybersecurity in the financial sector. Text analysis and adaptive algorithms improve the fight against money laundering.
Kumar et al. (2023)	Smart contracts, within the blockchain infrastructure, automate and verify transactions. In this way, AI helps predict fraud and promotes cybersecurity. It also improves the reliability of financial data, thereby reducing the potential danger of accounting fraud.
Saleh and Mishra (2024)	Artificial intelligence improves cybersecurity in the financial sector by identifying risks, detecting suspicious activity, and preventing fraud in real time. In other words, it automates security measures. It also enables better risk management and emphasizes the need for transparency in algorithms to ensure ethical and fair decisions.
Mishra (2023)	Artificial intelligence improves cybersecurity and prevents fraud in the financial sector through automated threat detection, the use of advanced algorithmic cryptography, and the prediction of cyberattacks. In conclusion, it improves security programs.

Chitimira et al. (2024)	It improves cybersecurity in financial institutions, detects unusual patterns and suspicious activities, improves identity verification, and monitors user behavior in real time. In addition, it detects vulnerabilities, improving security.

All studies analyzed in this systematic review agree that AI significantly improves fraud detection by analyzing large amounts of data and identifying unusual patterns that indicate fraudulent activity. According to Yi et al. (2023), AI uses techniques such as logistic regression, decision trees, and Bayesian networks to analyze financial data and detect fraud more accurately than traditional methods. This statement is supported by Chitimira et al. (2024), who highlighted that AI is particularly effective in detecting fraud related to money laundering, verifying identity, and improving due diligence processes by monitoring user behavior (Chitimera et al., 2024; Kumar et al., 2023). In this regard, data mining algorithms enable machine learning, allowing financial institutions to identify suspicious activities more quickly and accurately.

DISCUSSION OF RESULTS

Interpretation

Over the past five years, AI has become a driving force in the financial sector. This trend coincides with the findings of Dubey et al. (2020), Kumar et al. (2023), and Yi et al. (2023), who highlight that AI drives substantive changes in organizational culture, risk management, process automation, and the design of new financial services. However, it also raises necessary questions about ethical regulation and narrowing the technological gap between hegemonic and subordinate economies. Only the first group of these states is in a good position to take full advantage of the technical progress that AI brings. The second group, in contrast, is made up of countries in the southern hemisphere, which face structural obstacles such as a lack of technological focus, infrastructure, and English language skills. If human-machine interaction is to be successful, a holistic approach must be adopted and effective measures taken to control the socio-technical effect of such disruption.

Significance

The results obtained deepen the theoretical framework linking AI technology, financial innovation, and organizational performance. The theoretical premise that AI acts as a catalyst for efficiency and a source of competitive advantage, supported by more accurate predictive models, automation of critical tasks, and advanced data analysis (Andronie et al., 2023; Mills et al., 2024), is confirmed. The internal dynamics of AI will change the way financial companies operate. It is likely that the workforce now needs to incorporate hard and soft skills to operate in a technology-driven world. Therefore, more conventional people management needs to be reformed by putting more resources into the acquisition and consolidation of digital skills and their incentive system. New models for predicting fraud and stock market fluctuations with unprecedented accuracy generate new risks, such as a growing dependence on algorithms and vulnerability to sophisticated cyberattacks. In this context, financial institutions must be much more proactive in risk management, equipping themselves with cybersecurity tools, including an ethical review of responsible automated decisions. In fact, this last issue leads us to reflect on the relationship between AI and sustainability and financial inclusion.

Projection

This review article proposes that: a) the generalization of results is not so simple; very diverse economic contexts and completely varied forms of geography are at stake, b) most of the studies referred to take place in developed financial markets such as Europe and the United States. In this regard, it should be interesting for future studies to reach conclusions about the impact of AI on developing economies such as Brazil, Mexico, South Africa, or India; c) many of the studies reviewed are based on a cross-sectional or short-term analysis, so there is a lack of longitudinal research that would allow us to see how AI would influence organizational structures and market functioning in the medium and long term; d) Finally, although the emphasis on specific technologies such as AI, ML, or chatbots is logical, its scope could be extended to other disruptive technologies whose acceptance is still limited.

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CONCLUSIONS

In relation to RQ1, the evidence identified shows that during the period analyzed there was a sustained increase in research focused on the application of AI, machine learning, and hybrid models within the financial system, with a greater concentration in Asia, Europe, and North America. Recent research tends to prioritize topics such as operational efficiency, service personalization, and cybersecurity.

Regarding RQ2, the studies analyzed show that digital disruption is redefining the financial sector by modifying its business models, accelerating the digitization of processes, and promoting the adoption of emerging technologies such as big data, blockchain, and conversational AI. This transformation has created a competitive environment in which organizations that incorporate AI are better positioned to respond to technological and market changes.

Regarding RQ3, the literature agrees that AI and machine learning drive the development of banking through process automation, improved decision-making, and optimization of the customer experience. Predictive models and intelligent systems enable more accurate risk management, reduce processing times, and improve the personalization of financial services.

For RQ4, the findings reveal that AI contributes significantly to the analysis and management of large volumes of data, allowing complex patterns to be interpreted, predictions to be generated, and strategic decision-making to be supported. Advanced analytics is consolidating its position as an indispensable component for understanding consumer behavior, assessing risks, and designing products tailored to the needs of each user.

Regarding RQ5, studies show that AI plays an increasingly decisive role in detecting fraud and strengthening cybersecurity. Models based on machine learning, anomaly analysis, and automated surveillance systems make it possible to identify suspicious transactions with greater precision and respond to threats in real time, contributing to the integrity and stability of the financial system.

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Conflict of interest

There is no conflict of interest on the part of the author.

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The published material does not contradict the journal's policy of transparency and honesty.

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