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THE ACCOUNTING AND AUDIT PROFESSION IN THE AGE OF EMERGING TECHNOLOGIES. DESCRIPTIVE ANALYSIS

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Abstract
The accounting and auditing profession is at a crucial moment of transformation, driven by the rapid advance of emerging technologies. In the era of digitization, tools such as Robotic Process Automation (RPA), Blockchain, Internet of Things (IoT), Artificial Intelligence (AI) and Data Analytics have begun to redefine the way financial-accounting data is identified, collected, processed and reported, these technologies are continuously optimizing and improving traditional processes in any business domain, as well as the efficiency of transparent financial reporting communication. The objectives of this paper is to highlight on the one hand the role of emerging technologies in accounting and auditing, and on the other hand to illustrate the need for applicability of these technologies in business domain, by conducting a survey analysis of the perception of accounting professionals on the adoption and integration of emerging technologies in accounting and auditing. From the analysis of the papers presented, it is thus possible to provide a concrete insight into how technological innovations can be effectively implemented in accounting and auditing practice, as well as a deep understanding of how emerging technologies are shaping the future of the accounting and auditing profession, highlighting both the opportunities and challenges associated with this transformation.

Keywords: *Machine Learning; Robotic Process Automation (RPA); Blockchain, Internet of Things (IoT); Artificial Intelligence (AI); Data Analytics Accounting professionals; ·Information technologies, Emerging technologies*

JEL Classification*: M15, M41, M42, O33*

INTRODUCTION

The accounting system is essential for conducting business, managing finances and measuring profitability, as well as for managing the financial condition of a business, identifying and prioritizing risks and opportunities, and making informed decisions. Within this system, information technology has become a critical enabler, transforming the way accounting and auditing professionals manage information, analyze financial data, and make decisions within organizations. The impact of information technology on the accounting profession is profound, transforming the roles and responsibilities of accounting professionals. The automation of repetitive processes has freed accounting professionals' time for more valuable work and deeper analysis, while access to real-time information has improved decision-making and turned accounting professionals into strategic partners in organizations. In the context of rapid technological change, understanding the attitudes, opinions and experiences of accounting and auditing professionals with respect to information technology becomes crucial for adaptation and innovation in accounting. Through this research, the aim is not only to identify papers that have tested the current perceptions of accounting and auditing professionals, but also to provide valuable insights for the future development of information technologies in accounting and auditing and for the improvement of accounting practice in the context characterized by the rapid and dynamic evolution of these technologies and the complex and fundamental changes in the current economic environment. The particular importance of the research carried out lies in understanding how new information technologies are currently influencing and will influence accounting and auditing practice in the future, thus providing a clear and comprehensive perspective on the adaptation and reorientation needs of professionals in these fields in the face of these major changes (Jones & Murphy, 2021).

Emerging technologies also offer flexibility and scalability, allowing companies to adapt quickly to changing market and regulatory requirements. Cloud-based solutions, for example, enable access to data and applications from anywhere, facilitating employee collaboration and mobility (Harrison, & Lloyd, 2020). Emerging technologies are also scalable, allowing companies to expand or reduce their capabilities as needed. This is essential to meet fluctuating market demands and to ensure operational continuity under uncertainty (Gupta, & Mehlawat, 2020). Emerging technologies, especially data analytics, play a crucial role in risk assessment and risk management. By analyzing data from various sources, companies can identify potential risks and develop effective

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strategies to manage them. For example, predictive analytics can be used to anticipate market fluctuations and take preventive measures to mitigate their impact. AI can also be used to continuously monitor transactions and detect anomalies that could indicate fraudulent activity. This allows companies to react quickly to potential threats and minimize losses (Brown & Martin, 2020).

Emerging technologies also contribute to the sustainability and social responsibility of companies. By using data analytics and IoT, companies can monitor and report on their environmental impacts, such as energy consumption, carbon emissions and use of natural resources. This helps to identify opportunities for improvement and implement more sustainable practices (Garcia & Martinez, 2020).

The automation of accounting processes is one of the main benefits brought by Artificial Intelligence in the field of financial accounting and auditing. By implementing AI technologies, repetitive and labor-intensive activities, such as checking invoices, reconciling accounts and generating financial reports, can be performed quickly and without human intervention (Stoica, 2022). This leads to reduced errors and more efficient working time for accounting staff, allowing them to focus on more complex and value-added activities.

Data analytics also has an important role to play in financial accounting and auditing, as it allows financial data to be analyzed in a detailed and efficient way. By using specialized tools, trends and patterns in financial data can be identified, which can provide valuable insights for decision making (Westland, 2024, pp. 1-51). Data analytics can also help detect anomalies and possible errors, helping to improve the accuracy and reliability of financial information. By using data analytics techniques, opportunities to optimize costs and increase profitability can be identified, thus providing a competitive advantage for organizations (Balios, Kotsilaras and Eriotis, 2020).

Analyzing financial data is a crucial aspect in financial accounting and auditing and its role is enhanced by the use of Data Analytics (Shoetan et al., 2024). Through the application of data analytics technologies and methodologies, a detailed assessment of financial information can be made by identifying relevant trends, relationships and patterns.

One of the critical issues in utilizing Artificial Intelligence and Data Analytics in financial accounting and auditing is ensuring data privacy and security. The processes for collecting, storing and analyzing financial data need to comply with personal data protection legislation and ensure their security against unauthorized access (Dutescu & Mihai, 2023).

The objectives of this paper is to highlight the role and importance of emerging technologies in accounting and auditing, given their ability to provide transparency and security of transactions, enable real-time data collection and monitoring, and provide new and valuable insights into financial data, and to illustrate the need for applicability of these technologies in business by conducting a survey analysis of accounting professionals' perception of the adoption and integration of emerging technologies in accounting and auditing.

Future trends in the use of Artificial Intelligence and Data Analytics in sustainability accounting and financial auditing will include a significant increase in the use of AI technologies and data analytics methodologies. It is anticipated that AI will continue to provide innovative and effective solutions for automating accounting processes and improving financial data analytics, especially in the context of sustainability (Barna, Ionescu and Moise, 2021).

The development of AI technologies will lead to the emergence of more advanced and customized tools for managing financial information and assessing the economic impact of sustainability practices.

I. LITERATURE REVIEW

Nowadays, we are constantly hearing concepts such as Artificial Intelligence, Machine Learning, Neural networks or Deep Learning and how their application will influence the business domain.

Some definitions of the concept of Artificial Intelligence "AI is the ability of computers to mimic all the abilities of the human intellect." respectively "AI is systems that give signs of intelligent behavior by analyzing their own environment and making decisions - with some degree of autonomy - to accomplish specific goals" (Sheikh, Prins and Schrijvers, 2023, pp. 15-20).

Neural networks, machine learning and deep learning are the cornerstones when it comes to artificial intelligence systems, and they are all treated as subdomains of artificial intelligence. Neural networks is a subdomain of machine learning and deep learning is a subdomain of neural networks (ibm.com).

Artificial intelligence doesn't think about the "moves" it executes but just calculates the best "move", simulating decision making (Martinez, 2019). AI is already not only promising but changing the world, it is present in most fields, from medicine to content creators on social media. The digital transformation in the manufacturing sector is contributing to increased productivity and efficiency, the applications are countless, from customer service to predictive maintenance to information sharing, with RPA Robotic Process Automation representing an important part of these trends, as it not only saves time but also reduces errors that can occur due to manual data manipulation (Peterson & Miller, 2018).

Increasing the number of transactions changes the volume and size of a business, therefore, it becomes

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necessary to have proper categorization of data. Automation in the sphere of financial-accounting processing is a significant step forward towards streamlining and modernizing the financial operations of an organization (Thottoli, 2021).

With the use of Robotic Process Automation (RPA) technology, companies can realize numerous benefits, but they must also be aware of the potential risks associated with this transition. Adopting a digital system entails a major change in the roles held within the accounting department as well as the skill set required to perform the service tasks in the new context (Stoica & Ionescu-Feleagă, 2022).

The focus on knowledge has led to an increased attention on information technology as one of the most important sources of competitive advantage (Straub, 2022). In recent years, blockchain technology has become a major topic of interest in various fields, including accounting and financial auditing. Its ability to provide transparency, security and immutability of data makes it ideal for application in financial practices (Jones & Murphy, 2021).

Blockchain technology has become a topic of great interest for academic research in accounting and auditing to highlight possible changes on the functioning of entities' accounting information system, corporate reporting and auditing (Brown & Martin, 2020). Studies in the literature show that, among all fields, the business, management and accounting field ranked third in terms of interest in this topic (Harrison & Lloyd, 2020), with the main themes related to its effects on the accounting and auditing profession being governance, transparency and trust in the blockchain ecosystem; continuous audit; smart contracts; and changing roles of accountants and auditors (Johnson & Smith, 2021).

The application of blockchain technology in accounting allows the maintenance of a public ledger (a public database), organized in chronological order and accessible by a decentralized network of users, such as the Internet, with some specific characteristics compared to traditional databases.

Robotic process automation (RPA) has been one of the fastest-growing emerging technologies in recent years and is expected to have a multi-billion-dollar market by 2028. It promises to radically change the internet-based economy and is expected to produce a world with reduced human error and fatigue and achieve near-perfect products and services. Current technological research and development in RPA is more of a tool and a specific aspect, with intentions to achieve efficient automation (Wagener, 2023).

II. THE ROLE AND PLACE OF RPA IN THE HANDLING AND REPORTING OF FINANCIAL ACCOUNTING INFORMATION

RPA deals with the use of software robots to automate high-volume, rule-based, standard, repetitive, and interactive digital tasks that do not require human reasoning and can interface with any number of business, technology, and application layers (Siderska, 2020). It uses computer software, a "robot" that executes and manipulates existing software applications to perform manual, mundane, rule-based, repetitive, repetitive tasks, e.g., data re-entry, form filling, payments, downloading and uploading, mergers and acquisitions, cost management, etc. (William et al., 2023).

RPA is a set of software products that enable the creation, launch, operation and analysis of software robots. RPA allows software robots or bots to mimic and integrate the actions of a human interacting with digital systems and software (Bhadra, Chakraborty and Saha, 2023). Shorter time to market, lower development costs, and high adoption rate lead to high demand for robotic process automation compared to classical automation tools. Setting up automation usually involves process consulting, specifications for implementation and management during implementation (Lu, Xu and Wang, 2020).

The financial sector is at the top of the list of companies benefiting from RPA solutions. KPMG's EU sales team in the UK has embraced RPA technology, designed to speed up proposal dispatch and reduce the workload around high-volume activities. In addition, leveraging RPA can improve customer service levels across departments at minimal cost. Narrowing the area of customer dissatisfaction can be faster and more efficient, which in turn can lead to customer loyalty (Boute, Gijsbrechts and Van Mieghem, 2022).

The broader context about robotic process automation (RPA) includes the integration of information technology into business processes to enable a company to have close relationships with customers and improve its operational performance. In this sense, Robotic Process Automation refers to the development and implementation of robotic processes, decision writers and improvements in productivity and superiority (Javaid et al., 2021).

Integrating AI and machine learning components with RPA enables process managers not only to automate tasks that rely on judgment, but also to extend the use of AI applications into other domains (Venigandla & Tatikonda, 2021). While RPA allows companies to automate a range of repetitive and manual tasks involving fixed rules, today it is incredibly complex and costly to add and maintain sophisticated AI/ML systems to automated processes that require perception, judgment, and, most importantly, problem solving.

Deploying RPA across industries brings significant benefits in operational efficiency. By eliminating repetitive and time-consuming tasks, processes are accelerated and employees are able to focus more on valuable

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activities. Robotic process automation (RPA) accounting process automation is the use of specialized software robots to manage a variety of accounting activities. These include account reconciliation, detailed financial analysis and invoice management, all performed with exceptional accuracy. With this in mind, accountants can focus their attention and expertise on more valuable activities, such as data interpretation and customized report generation (Lacurezeanu, Tiron-Tudor and Bresfelean, 2020).

Automating accounting processes through RPA brings numerous benefits and opportunities for organizations, allowing accountants to focus on value-added activities, reducing the risk of errors and helping to increase profitability and improve the organization's image in the eyes of business partners and regulators (Smeets, Erhard and Kaußler, 2021). By implementing RPA solutions in accounting, organizations benefit from a constant flow of accurate and up-to-date data, and efficiency and control in this vital area are significantly improved (Perdana, Lee and Kim, 2023).

III. THE ROLE OF EMERGING TECHNOLOGIES IN ACCOUNTING AND AUDITING PRACTICES

In the digital age, emerging technologies such as artificial intelligence (AI), blockchain, Internet of Things (IoT) and data analytics have started to play a pivotal role in financial accounting and auditing. These technologies offer numerous benefits that contribute to the financial sustainability of organizations by improving operational efficiency, data accuracy and process transparency. One of the main advantages of emerging technologies is the ability to automate repetitive and time-consuming processes. Artificial intelligence (AI) can be used to automate the reconciliation of accounts, the generation of financial reports, and the verification of transactions, thereby reducing the time required to perform these activities and freeing up resources for higher value-added activities (Harrison & Lloyd, 2020). For example, deploying an AI system for automated account reconciliation can reduce the time required for this process from days to hours while eliminating human error. This not only improves operational efficiency but also allows accountants to focus on more complex financial analysis and strategies. Emerging technologies such as data analytics and blockchain offer significant opportunities for improving the accuracy and integrity of financial data. Data analytics enables the analysis of large datasets to identify patterns, anomalies, and trends that might be missed by traditional methods (Jones & Murphy, 2021).

The literature is beginning to recognize the potential opportunities and challenges that blockchain technologies can offer to accounting, financial management and control (Kshetri, 2023). Blockchain technology refers to the integrated system of storing, verifying and transmitting electronic data in a secure, transparent and immutable manner. For the purposes of sustainability, financial accounting and auditing, the concept of compliance information technology or more specifically corporate compliance information technology has been introduced (Rijanto, 2024). The major objective in implementing blockchain technology in a company's sustainability, financial accounting and auditing practices is to achieve transparency, assurance and independence at the same time. The blockchain technology model is incorporated to improve the company-stakeholder relationship so as to create reliable, sustainable and meaningful financial accounting information suitable for stakeholder decision making and to improve the management and governance of supporting companies once stakeholder theory is taken into consideration (Han et al., 2023).

Blockchain technology brings a number of distinct features that have a significant impact in the field of financial accounting and auditing. One of these features is data immutability, which means that information recorded in a blockchain cannot be altered or deleted. This provides a high level of security and trust in financial data, eliminating the risk of fraud or manipulation (Manoharan, 2022).

The potential for growth in the use of Blockchain in sustainability accounting and financial auditing is considerable, especially as new applications and technological solutions are developed, With the continuous advancement of technology, the use of Blockchain is expected to expand beyond simple transaction recording to sustainability assurance and verification in supply chains, financial reporting and real-time performance monitoring, with significant impact in optimizing and making transparent the processes of financial accounting and auditing (Bunget & Trifa, 2023).

IV. ANALYSIS OF STUDIES ON THE REACTION OF ACCOUNTING PROFESSIONALS TO THE CHANGES CAUSED BY THE IMPACT OF DIGITALIZATION

In this part of the paper, we summarize the works found in the literature that aim at analyzing how accounting professionals react to the changes caused by the impact of digitization. Thus, Table 1 presents a meta-analysis of the literature, considering the proposed objective of this paper.

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Table 1. Meta-analysis of the literature on emerging applications used in Accounting and Auditing

Year	Authors	Publication title	Research results
2024	(Shoetan et al.)	*Reviewing the role of Big Data Analytics in Financial Fraud Detection*	The integration of Big Data Analytics in financial fraud detection is a key step forward in protecting the integrity of the financial industry.
	(Januszewski, Buchalska-Sugajska and Kujawski)	*Impact of Digital Transformation on Accounting Profession in the Opinions of Finance and Accounting Students*	Students' perspectives on the influence of digital transformation (DT) on the accounting profession were assessed, with a significant proportion of respondents believing that accountants need to continuously improve their digital competencies (DC). Simplification and accelerated execution of accounting processes emerge as the most notable benefits of DT, while the increased costs associated with training employees emerge as a significant disadvantage of DT.
	(Reslan & Jabbour Al Maalouf)	*Assessing the Transformative Impact of AI Adoption on Efficiency, Fraud Detection, and Skill Dynamics in Accounting Practices*	The results confirm that the adoption of AI in accounting significantly enhances the efficiency and quality of financial data, positively influences financial fraud detection and tax returns, and changes work activities and skill requirements within the accounting profession, highlighting the transformative role of AI in modern accounting practices.
	(Ahmad)	*Ethical implications of artificial intelligence in accounting: A framework for ai adoption in multinational corporations in Jordan*	Integrating artificial intelligence into fraud prevention presents challenges, including data privacy concerns, the need for high-quality datasets and the interpretability of artificial intelligence models, AI also continues to improve the accuracy, efficiency and scalability of fraud prevention efforts.
2023	(Han et al.)	*Accounting and auditing with blockchain technology and artificial Intelligence*	Auditing can improve effectiveness with AI tools by using blockchain data that can be tracked and auditable.
	(Dutescu & Mihai)	*The External Technological Context of Artificial Intelligence in Financial Services*	Companies using AI that have seen a 20% increase in turnover have seen business change in the following ways: better overall performance, better overall leadership.
	(Socoliuc)	*The impact of digitalization on the accounting profession in Romania – a quantitative research*	Accounting professionals play a key role within an entity and can ensure the success of a firm to the extent that they continuously update their accounting knowledge, skills and abilities in line with the latest developments in the field, as well as aligning them with changes in international business practices,

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			driven by the widespread spread of digitalization.
	(Mihai)	*A Quantitative Analysis on the Impact of Artificial Intelligence Solutions in Accounting and Audit*	The benefits of implementing AI in accounting and financial reporting processes have demonstrated that cognitive technologies significantly reduce the time required to perform certain accounting activities, reduce errors, improve real-time reporting, help monitor assets and inventories in real time, facilitate audit assignments and contribute to more accurate financial predictions.
	(Mihalciuc, Grosu and Cotovanu)	*The reaction of accounting professionals to the changes caused by the impact of digitalization*	The cloud is experiencing rapid growth as new technologies are integrated and become more commonplace in accounting, improving business performance and enabling management to get a complete picture of business performance.
2022	(Boute, Gijsbrechts and Van Mieghem)	*Digital Lean Operations: Smart Automation and Artificial Intelligence în Financial Services*	After years of program implementation, digital operations have the potential to further improve operational efficiency.
	(Vărzaru et al.)	*Assessing Users' Behavior on the Adoption of Digital Technologies în Management and Accounting Ionformation Systems*	Innovation in digital technology has contributed to the development of management and accounting information systems, improving organizational performance. In addition, the simplification of tasks has created opportunities for organizations in management and marketing by increasing customer trust and improving reputation and image. However, digital transformation must ensure interoperability and integration of IT solutions to enhance these benefits.
2021	(Barna, Ionescu and Moise)	*The Influence of Integrated Systems on Company Performance and Sustainability*	ERP systems play a key role in improving the financial performance and sustainable development of small, medium or large companies.
	(Agrifoglio & de Gennaro)	*New Ways of Working through Emerging Technologies: A MetaSynthesis of the Adoption of Blockchain in the Accountancy Domain*	Based on the need to overcome the inefficiencies of an accounting system that is still too little digitized, new advances and innovations based on blockchain technology must overcome the limitations imposed by resistance to change. Although there is no clear picture in the use and application of blockchain technology in accounting, the study proposes some implications, for example the optimization of organizational processes is an advantage to companies in terms of speed in the performance of work, reporting and quality of details available.

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	(Banța et al,)	*Artificial Intelligence in the Accounting of International Businesses: A Perception-Based Approach*	Accounting practitioners have a clear picture of the benefits and challenges of implementing AI-based solutions in accounting processes. However, practitioners recognize that further digital skills are needed and are willing to acquire them.
	(Krájnik & Demeter)	*Artificial Intelligence Approaches In Finance And Accounting*	Implementarea tehnologiilor bazate pe AI constituie cheia competitivității agenților economici în viitor. AI, alături de învățarea automatizată nu pot înlocui inteligența umană, dar o poate susține. Principalul beneficiu al acestor tehnologii este accesul mai rapid la informații în timp real din mai multe surse pentru profesioniștii contabili, folosite ulterior pentru a oferi sfaturi în timp util.
	(Mookerjee & Rao)	*A Review of the Robotic Process Automation's Impact as a Disruptive Innovation in Accounting and Audit*	Accounting automation through robotization has the power to replace a significant portion of accountants' work, which will result in a reduction in accountants' core roles. RPA has completely changed the accounting system. Among the tasks of future accountants is financial reporting for the company's advisory, which has evolved in response to technological innovation to be simpler,
	(Pedreño, Gelashvili and Nebreda)	*Blockchain and its application to accounting*	Blockchain is a distributed ledger technology with special features. Distributed ledger technology can be defined as a decentralized database, managed by different participants, which could be adapted in accounting much better than blockchain. Of note, is that not all distributed ledger technologies are blockchain technologies.
	(Spanò et al.)	*Blockchain in accounting, accountability and assurance: an overview*	Although blockchain is a multi-faceted technology with multiple implications for accounting and the accountancy profession, it is still emerging. Recently, a new phase of research has been uncovered based on the interaction of blockchain technology with other technological advances such as virtual reality and metaverse.
	(Gherman Bursuc, Melega and Grosu)	*Accounting in the era of digitalization*	The digitalization of accounting in a company's information system is a necessity nowadays, it comes to improve the company's performance and transform accounting into the art that "ensures success". ERP systems play a primary role in improving financial activity and in the sustainable development of small, medium or large companies.

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	(Kroon, Ceu Alves and, Martins)	*The impact of emerging technologies on Accountants' role and skills*	The activities commonly performed by accountants, analysis and presentation of information, etc., can be supported by big data analytics, blockchain technology and artificial intelligence. While accounting professionals see these technologies as a threat, they create opportunities.
2020	(Farcane and Deliu)	*Stakes and Challenges Regarding the Financial Auditor"s Activity in the Blockchain Era*	Blockchain is a technology, an algorithm that allows for the encryption of transactions with public keys, their access with private keys, and the public distribution of the entire resulting log, which is a decentralized log that cannot be altered and does not depend on a central entity.
	(Geetha, Malini and Indhumathi)	*Robotic Process Automation*	RPA and automation tools are a component, a piece of a hybrid toolkit that will take the organization towards the goal of transformation. This is a technology that enables the business to achieve greater results and both IT and the business must work closely together.
	(Siderska)	*Robotic Process Automation – a driver of digital transformation?*	Robotic process automation is considered one of the digital transformation technologies that support companies in robotizing repetitive and routine tasks. Like other advanced solutions, RPA enables greater efficiency. By programming autonomous software robots to replicate basic administrative processes, it combines software, artificial intelligence, and machine learning capabilities to automate manual tasks that are normally operated by humans.
	(Lacurezean, Tiron-Tudor and Bresfelean)	*Process automation through robotization in auditing and accounting*	RPA in financial auditing would considerably minimize human errors, and the checks that auditors would perform after receiving data processed through RPA would be insignificant, and auditors would acquire new work skills.
	(Cristea)	*Innovations in Financial Audit based on Emerging Technologies*	Big Data brings information of any type for analysis, structured, unstructured or semi-structured, but which can be analyzed in a complete manner, which aims to avoid risks, detect fraud and identify material errors.

Source: Own processing based on literature studies

They can change the way accounting entries are performed by automating accounting operations and control procedures, transforming it into 'smart accounting', as well as the way audits of financial statements are performed and delivered through 'smart audit procedures', by automated execution of audit procedures and near-real-time reporting of audit results.

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Integrating new technologies into existing accounting and auditing systems is a major challenge, with blockchain implementation in accounting potentially requiring significant adjustments to existing IT infrastructure, companies need to carefully plan their deployment of emerging technologies, ensuring that all systems are integrated without disruption to current operations. Implementing emerging technologies requires significant investments in infrastructure, software, and employee training (Peterson & Miller, 2018). To maximize return on investment, companies must develop detailed business plans that justify the costs and outline the long-term benefits of implementing these technologies, and it is essential to explore funding and partnering opportunities with other organizations to reduce the financial burden.

The adoption of emerging technologies implies significant changes in the way of working and organizational processes. Employee resistance to change can be a major barrier to the successful implementation of these technologies. It is crucial for organizations to effectively manage the change process by clearly communicating the benefits and involving employees at all stages of implementation, and it is important to create an organizational culture that encourages innovation and adoption of new technologies (Jones & Murphy, 2021).

Emerging technologies are evolving rapidly and regulations and standards do not always keep pace with these changes. Companies need to ensure that the use of new technologies is compliant with local and international regulations (Cosmulese & Socoliuc, 2019). For example, the use of blockchain in accounting must comply with country-specific accounting and tax regulations (Brown & Martin, 2020).

V. CONCLUSION

New technologies such as artificial intelligence, process automation and cloud-based solutions have the potential to revolutionize the field of accounting. These innovations not only improve the efficiency and accuracy of accounting processes, but also provide opportunities for accountants to become strategic partners within organizations, helping to drive data-driven decision-making and optimize financial performance. However, this transformation does not come without challenges. Resistance to change is a natural human reaction, but it can be overcome through education, appropriate training and organizational support.

To successfully navigate these changes, a balanced approach is essential. Organizations must play an active role in facilitating the transition by providing training programs and resources to support the development of their employees' technology skills. Professional associations and educational institutions must also adapt their curricula to prepare accountants for a digitized future. This support is crucial for reducing anxieties and enabling accountants to see technology as an ally rather than a threat. As technologies evolve, the role of the accountant is changing from that of a mere manager of financial transactions to that of a strategic advisor.

Accountants embracing new technologies can add value by providing complex analysis and insights that support business decisions. Automating repetitive tasks allows them to focus on activities that require strategic thinking and human judgment, increasing their relevance and impact within organizations. In an ever-changing landscape, accountants are faced with a clear choice: embrace change and embrace innovation or get left behind. Understanding and embracing new technologies are not just options, but necessities to remain competitive and relevant in the field. Professionals who choose to embrace these changes will find new opportunities for personal and professional development while contributing to the success and innovation of their organizations.

In conclusion, new technologies represent both a challenge and an opportunity for accounting professionals. Success in this new digital age depends on their ability to adapt and continuously learn. Technology should not be seen as a threat, but as a powerful tool that can transform the accounting profession and add significant value to clients and organizations. With the right support and a proactive outlook, accountants can successfully navigate through technological transformations and continue to play a critical role in the business world.

Accounting professionals need to develop analytical skills and continuously adapt to technological change to stay relevant in an evolving digital world. In this context, it is essential that accounting professionals are prepared to seize the opportunities offered by new technologies to improve their performance and contribute to the success of the organizations in which they work.

REFERENCES

1. Agrifoglio, R., de Gennaro, D. (2022). New Ways of Working through Emerging Technologies: A Meta-Synthesis of the Adoption of Blockchain in the Accountancy Domain. *Journal of Theoretical and Applied Electronic Commerce Research*, 17(2), 836-850.
2. Ahmad, Ahmad Y., Bani. A. (2024). Ethical implications of artificial intelligence in accounting: A framework for ai adoption in multinational corporations in Jordan. *International Journal of Data and Network Science*, 8, 401–414.
3. Balios, D., Kotsilaras, P., Eriotis, N., & Vasiliou, D. (2020). Big Data, Data Analytics and External Auditing. *Journal of Modern Accounting and Auditing*, 16(5), 211-219.
4. Bança, V. C., Rîndașu, S. M., Tănasie, A., & Cojocaru, D. (2022). Artificial Intelligence in the Accounting of International Businesses: A Perception-Based Approach. *Sustainability*, 14(11), 6632. https://doi.org/10.3390/su14116632.

DOI: 10.4316/EJAFB.2024.12116

Volume **12** / 2024 ISSN 2344-102X
Issue 1 / **February** 2024 ISSN-L 2344-102X

5. Barna, L., Ionescu, B., & Moise, D. (2021). The Influence of Integrated Systems on Company Performance and Sustainability. *Audit Financiar*, XIX, 2(162), 337-350, DOI:10.20869/AUDITF/2021/162/010.
6. Bello, O.A., Olufemi, K. (2024). Artificial intelligence in fraud prevention: Exploring techniques and applications challenges and opportunities. *Computer Science & IT Research Journal*, 5, 1505–20.
7. Bhadra, P, Chakraborty, S. & Saha, S. (2023). Cognitive IoT Meets Robotic Process Automation: The Unique Convergence Revolutionizing Digital Transformation in the Industry 4.0 Era, Smart Innovation. In: Bhattacharyya, S., Banerjee, J.S., De, D. (eds). Confluence of Artificial Intelligence and Robotic Process Automation. Smart Innovation, Systems and Technologies, vol 335. Springer, Singapore. https://doi.org/10.1007/978-981-19-8296-5_15 .
8. Bou Reslan, F. Jabbour Al Maalouf, N. (2024). Assessing the Transformative Impact of AI Adoption on Efficiency, Fraud Detection, and Skill Dynamics in Accounting Practices. *Journal of Risk and Financial Management*, 17(12), 577.
9. Boute, R.N., Gijsbrechts, J., & Van Mieghem, J.A. (2022). Digital Lean Operations: Smart Automation and Artificial Intelligence in Financial Services. In: Babich, V., Birge, J.R., Hilary, G. (eds). *Innovative Technology at the Interface of Finance and Operations* (pp. 175–188). Springer Series in Supply Chain Management, Springer, Cham.
10. Brown, J., Martin, S. (2020). AI in Accounting: Transforming Financial Management. *Journal of Accounting and Technology*, 18(3), 112-130.
11. Bunget, O.C., Trifa, G.I. (2023), Cryptoassets – Perspectives of Accountancy Recognition in the Technological Era, *Financial Audit, vol. XXI*, 3(171). 526-551, DOI: 10.20869/AUDITF/2023/171/019.
12. Cristea, L.M. (2020), Innovations in Financial Audit based on Emerging Technologies, *Audit Financiar, vol. XVIII*, 3(159), 513-531, DOI: 10.20869/AUDITF/2020/159/016.
13. Cosmulese, C.G., Socoliuc, M.I. (2019). The Challenges of Internal Audit, Between Technological Development and New Skills, *European Journal of Accounting, Finance & Business*, 7 (3), DOI: 10.4316/EJAFB.2019.732.
14. Duțescu, A., Mihai, M.S. (2023). The External Technological Context of Artificial Intelligence in Financial Services, *Audit Financiar, vol. XXI*, 4(172), 747-759. DOI: 10.20869/AUDITF/2023/172/025.
15. Farcane, N., Deliu, D. (2020), Stakes and Challenges Regarding the Financial Auditor‟s Activity in the Blockchain Era. *Audit Financiar, vol. XVIII*, 1(157), 154-181. DOI: 10.20869/AUDITF/2020/157/004.
16. Garcia, E., Martinez, R. (2020). Regulatory Issues in IoT Integration for Accounting. *Compliance Journal*, 22(2), 103-115.
17. Geetha, T., Malini, A., & Indhumathi, M. (2020). Robotic process automation. *Int J Comput Techniques*, 7(5), 1-12.
18. Gherman, M., Melega, A., & Grosu, V. (2021). Contabilitatea în era digitalizării. In ASEM (Eds). International Scientific Conference on Accounting, ISCA 2021, Ed. a 10-a. (43-49), ASEM, Chișinău, R. Moldova.
19. Gupta, S., Mehlawat, M.K. (2020). Blockchain Technology for Enhancing Transparency and Accountability in Accounting. *Journal of Digital Innovation*, 10(4), 225-241.
20. Han, H., Shiwakoti, R. K., Jarvis, R., Mordi, C., & Botchie, D. (2023). Accounting and auditing with blockchain technology and artificial Intelligence: A literature review. International. *Journal of Accounting Information Systems*, 48, 100598.
21. Harrison, P., Lloyd, T. (2020). Life Cycle Analysis in Financial Audits. *Environmental Accounting Review*, 25(2), 102-117.
22. Januszewski, A., Buchalska-Sugajska, N. & Kujawski, J. (2024). Impact of Digital Transformation on Accounting Profession in the Opinions of Finance and Accounting Students. In B. Marcinkowski, A. Przybylek, A. Jarzębowicz, N. Iivari, E. Insfran, M. Lang, H. Linger, & C. Schneider (Eds.), Harnessing Opportunities: Reshaping ISD in the post-COVID-19 and Generative AI Era (ISD2024 Proceedings). Gdańsk, University of Gdańsk, Poland.
23. Javaid, M., Haleem, A., Singh, R.P., & Suman, R. (2021). Substantial capabilities of robotics in enhancing industry 4.0 implementation. *Cognitive Robotics*, 1, 58-75.
24. Johnson, R., Smith, L. (2021). Data Analytics for Sustainable Financial Auditing. *Sustainability Journal*, 14(1), 78-95.
25. Jones, T., Murphy, L. (2021). Billing and Payments Automation through IoT. *Accounting Today*, 33(1), 4559.
26. Krájnik, I., Demeter, R. Artificial Intelligence Approaches In Finance And Accounting. *Annales Universitatis Apulensis*: Series Oeconomica, 23(1), 63-71.
27. Kroon, N., do Céu Alves, M., & Martins, I. (2021). The impacts of emerging technologies on accountants' role and skills: Connecting to open innovation a systematic literature review. Jurnal of Open Innovation: Technology, Market, and Complexity, 7(3), 163.
28. Kshetri, N. (2023). Blockchain in the Global South: Key Issues and Current Status. In: Blockchain in the Global South. Palgrave Macmillan, Cham. https://doi.org/10.1007/978-3-031-33944-8_1.
29. Lacurezeanu, R., Tiron-Tudor, A. & Bresfelean, V.P. (2020). Robotic Process Automation in Audit and Accounting, *Audit Financiar, XVIII*, 4(160), 752-770, DOI: 10.20869/AUDITF/2020/160/024.
30. Lu, Y., Xu, X., & Wang, L. (2020). Smart manufacturing process and system automation – a critical review of the standards and envisioned scenarios. *Journal of Manufacturing Systems*, 56, 312-325.
31. Manoharan, M. (2022). Blockchain technology: reinventing trust and security in the digital world, *International Research Journal of Modernization in Engineering Technology and Science*, 4(5). 1-8.
32. Martinez, R. (2019). Artificial Intelligence: Distinguishing between types & definitions, *Nevada Law Journal*, 19(3), 1015-1027.
33. Mihai, M. S. (2023). A Quantitative Analysis on the Impact of Artificial Intelligence Solutions in Accounting and Audit, *Audit Financiar, XXI*, 3(171), 483-498, DOI: 10.20869/AUDITF/2023/171/016.
34. Mihalciuc, C., Grosu, M. & Cotovanu, M. The reaction of accounting professionals to the changes caused by the impact of digitalization In Conference on Sustainability and Cutting-Edge Business Technologies (pp. 147-161). Cham: Springer Nature Switzerland.
35. Mookerjee, J., Rao, O.R.S. (2021). A Review of the Robotic Process Automation's Impact as a Disruptive Innovation in Accounting and Audit. *Turkish Journal of Computer and Mathematics Education* (TURCOMAT), 12(12), 3675-3682.
36. Pedreño, E., Gelashvili, V., & Nebreda, L. (2021). Blockchain and its application to accounting. *Intangible Capital*, *17*(1), 1-16.
37. Perdana, A., Lee, W. E., & Kim, C. M. (2023). Prototyping and implementing Robotic Process Automation in accounting firms: Benefits, challenges and opportunities to audit automation. *International journal of accounting information systems*, 51, 100641.
38. Peterson, R., Miller, K. (2018). Risk Management through Data Analytics. *Financial Risk Management Journal*, 37(1), 67-82.
39. Rijanto, A. (2024). Blockchain technology roles to overcome accounting, accountability and assurance barriers in supply chain finance. *Asian Review of Accounting*, 32(5), 728-758.
40. Sheikh, H., Prins, C., & Schrijvers, E. (2023). Mission AI: The New System Technology", Springer, Haga.
41. Shoetan, P.O., Oyewole, A.T., Okoye, C.C. & Ofodile, O.C. (2024). Reviewing the role of big data analytics in financial fraud detection. *Finance & Accounting Research Journal*, 6(3), 384-394.
42. Siderska, J. (2020). Robotic Process Automation—a driver of digital transformation? *Engineering Management in Production and Services*, 12(2), 21-31.

Volume **12** / 2024 ISSN 2344-102X
Issue 1 / **February** 2024 ISSN-L 2344-102X

43. Smeets, M , Erhard, R., & Kaußler, T. (2021). Looking to the Future—The Further Development of RPA Technology. In: Robotic Process Automation (RPA) in the Financial Sector. (pp. 137-141), Springer, Wiesbaden. Retrieved from https://doi.org/10.1007/978-3-658-32974-7_9.
44. Socoliuc, M. I. (2023). The impact of digitalization on the accounting profession in Romania – quantitative research. *Revista de Studii Financiare*, 8(Special), 132-154.
45. Spanò, R., Massaro, M., Ferri, L., Dumay, J., & Schmitz, J. (2022). Blockchain in accounting, accountability and assurance: an overview. *Accounting, Auditing & Accountability Journal*, 35(7), 1493-1506.
46. Stoica, LC. (2022). Artificial intelligence and ethical principles transposed by management at level financial organizations. *Revista Română de Statistică*, Supliment no. 5. Retrieved from https://insse.ro/cms/sites/default/files/field/publicatii/revista_romana_statistica_supliment_05_2022_0.pdf#page=78.
47. Stoica, O. C., Ionescu-Feleagă, L. (2022), Accounting and Auditing Profession in the Era of Digitalization, *Audit Financiar, XX*, 1(165), 134-146, DOI: 10.20869/AUDITF/2022/165/003.
48. Straub, R. (2022). Perennial Insights from Peter Drucker. In Executive Education after the Pandemic (pp. 57-66). Palgrave Macmillan, Cham.
49. Thottoli, M.M. (2021). Knowledge and use of accounting software: evidence from Oman. *Journal of Industry - University Collaboration*, 3(1), 2-14.
50. Vărzaru, A., Bocean, C., Mangra, M., & Simion D. Assessing Users' Behavior on the Adoption of Digital Technologies in Management and Accounting Ionformation Systems. *Electronics*, 11(21), 3613.
51. Venigandla, K., Tatikonda, V.M. (2021). Improving Diagnostic Imaging Analysis with RPA and Deep Learning Technologies. *Power System Technology*, 45(4). Retrieved from https://powertechjournal.com/index.php/journal/article/view/248.
52. Wagener, M. (2023). Technology and Internal Auditing–Four Essays on Current Issues in Research and Practice (Doctoral dissertation, Universität Duisburg-Essen. Retrieved from https://duepublico2.uni-due.de/servlets/MCRFileNodeServlet/duepublico_derivate_00080800/Diss_Wagener.pdf.
53. Westland, J.C. (2024). Audit analytics: data science for the accounting profession. Second edition, Springer Nature.
54. What is machine learning (ML)? (2024). Retrieved January 05, 2024 from: https://www.ibm.com/topics/machine-learning
55. William, P., Tidake, V. M., Thorat, S. R., & Verma, A. (2023). Future of Digital Work Force in Robotic Process Automation. *Robotic Process Automation*, 297-314.

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