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# Social and Educational Innovations in Accounting and Finance in the Context of Digitization

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**Abstract**: Digitization refers to the process of converting analog signals into digital signals, and its impact extends far beyond mere technological transformation. This phenomenon brings about substantial changes in various sectors, particularly in the realm of economics, where its influence becomes indispensable within a remarkably short span of time. Consequently, accounting departments have swiftly recognized the importance of embracing information technologies to improve their work processes and outcomes. As a result, they have been quick to implement these technologies, leveraging their potential to enhance efficiency and accuracy. In-depth research on this subject employs several methods to gain comprehensive insights. The first method is a literature review, which examines existing knowledge and scholarly works in the field. The historical method enables researchers to trace the evolution of digitization, providing valuable context for current developments. The comparison method evaluates the national and international impact of digitization, facilitating a broader understanding of its implications. Such knowledge not only contributes to academic advancement but also informs practical decision-making processes for organizations embracing the digital revolution.

Keywords: Digitalization, Accounting, Finance, Computer technology

## Introduction

With the accelerated development of technology, the digital enterprise and economy have become tangible realities, making as a result digital competences indispensable for the career success and personal development of every individual. Much of the digital evolution is driven by the global digital industry. Google, Facebook, Microsoft have contributed enormously to the digitisation of society. And things are constantly on the move: Uber, WhatsApp, Skype, Netflix - all these products are making our lives easier and changing the society we live in, because so much of our working environment and way of life is based on technology in its various forms. Digital technology has enormous untapped potential to improve education (Loft & Parsons, 2018; Berényi – Csiszárik-Kocsir, 2023a; 2023b; Csiszárik-Kocsir – Berényi, 2023). Thus, one of the objectives of this study is to analyze the phenomenon of digitization in accounting and finance (Cacik, 2018), its benefits and risks, the ways in which it can improve and develop the digital skills of accounting and reporting, affirming or refuting the hypothesis that digitization is a means to accounting education and not an end in itself.

The economy of the future, in turn, is based on the transition of economic activities to a digital economy, where digital technologies underpin activities. In many developed countries, the term 'digital economy' encompasses the duality of economy and society as a whole, where digitisation as a transformative process has changed business models, increased the pace of life and activity of the population, and transformed government policies and practices through online platforms.

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In this context, a digital transformation of businesses and the adoption of Industry 4.0 technologies represent a new perspective on the business landscape. This paradigm shift emphasises the sharing, ownership, use and organisation of demand, resources and customer data to improve the accessibility, efficiency and sustainability of products and services. Business digitisation is closely linked to key innovative technologies including artificial intelligence, software, robotics, blockchain, smart data analytics and cyber security. These technologies are significantly reshaping businesses' internal and external operations. The incorporation of advanced digital technologies, such as cloud computing, artificial intelligence, big data, IoT, IoE, and augmented reality, is significantly improving employee communication processes (Sharma et al, 2019). This is leading to more efficient and seamless workflows, which is crucial for the success of any organization.

Digital technologies, including big data, artificial intelligence, robotics and blockchain, are profoundly reshaping today's workplace and revolutionizing the way organizations conduct their operations (Nascimento et al., 2019). As we move further into the digital age, having a strong competency in digital skills is becoming increasingly crucial for professionals. This is especially true for those involved in the development and implementation of emerging technologies within organizations, as they must be equipped to generate value through the use of advanced digital solutions (Ferreira et al., 2021). Accounting firms, for example, can gain a competitive advantage (Varga, 2021; 2023) in the market by adopting digital technology-related solutions and creating innovative services (Petani et al., 2021, Csiszárik-Kocsir – Varga, 2023; Varga – Csiszárik-Kocsir, 2023). And with the Covid-19 pandemic underscoring the importance and benefits of digital skills, they have become a top priority for professionals across industries (Tandon, 2020).

#### **Social and Educational Innovations**

The process of innovation has always required a significant public effort, now at the global level, and a concentration of resources (Subnani, 2021). This is certainly true for the 20th century, especially for the second half of the 20th century, which is an important context, because in this era, regional units, the nation-state or smaller territorial units were already implemented in a subordinate and appropriate manner. The idea, which has sometimes appeared in the literature (Fettry, 2019), that innovation was influenced by corporate development or narrowly defined demand factors is wrong. This view is certainly not justified by economic history or economic policy. Major, era-defining innovation has always been the result of high-level economic policy decisions.

We will also look at the key role that education and lifelong learning play in ensuring a skilled workforce ready to face the challenges and opportunities offered by digitisation. Traditional learning approaches need to adapt quickly to the pace of new technologies and business paradigms to provide accounting and finance professionals with the knowledge and skills to be competitive and relevant (Mian et al., 2020). Social and educational innovations play a crucial role in adapting and harnessing this digital potential for the benefit of professionals and organisations in the sector (Mizser et al., 2022). In a world of exponential change, the need to keep up with new technologies and ways of working is imperative.

This paper examines how social and educational innovations have redefined how accounting and finance are understood and applied in the age of digitisation. We explore how cutting-edge technological solutions such as artificial intelligence, process automation, blockchain and big data analytics have revolutionised traditional approaches and opened up new opportunities for efficiency, transparency and informed decision-making.

#### **Digitalisation in Accounting and Finance**

The accounting field has undergone significant changes in recent years, driven by technological advances, globalisation and greater social awareness. As a result, there is a growing recognition of the need for social and educational innovation in accounting. In accounting, there are a number of digital skills that accountants need to possess. To excel in the accounting and finance industry in the age of digitisation, professionals must possess skills in data analytics, innovation, accounting automation, and digital communication. These skills will enable them to stay competitive and relevant in the rapidly evolving workplace. It's important for traditional learning approaches to adapt to the pace of new technologies and business paradigms to provide professionals with the knowledge and skills they need to succeed (Lestari, 2019). These skills enable accountants to effectively navigate the digital landscape, allowing them to provide valuable insights and strategic contributions to the success of their organizations.

The field of accounting, which has established rules and guidelines, is now embracing digitization. This development requires accountants to actively participate in system development projects. Their responsibility is to ensure that the system developer meets their requirements. They must also be responsible for the conceptual specifications of the system, including the type of information, sources, destinations, and applicable accounting rules. Furthermore, they need to conduct thorough analyses of IT investments and associated benefits (Dias-Sardinha, 2019). Due to the complexity of IT requirements in accounting, there is a pressing need for a team of knowledgeable accounting information systems (AIS) professionals to manage accounting studies and practices (Damayanti, 2019).

In the accounting industry (Dillard, 2016), terms such as artificial intelligence, big data, blockchain technology, cloud solutions, software bots, and embedded systems have become commonplace. The implementation of smart technologies and big data brings changes that force accountants to take on new responsibilities, update their skills and adopt novel approaches to collaboration, particularly focusing on interactions between humans and machines. (Gulin et al., 2019). These emerging technologies create complexity and scale, positioning those responsible for their development in a new position within the professional ecosystem. They become part of a network of relationships involving customers, service providers, professionals from various fields, regulatory bodies, and the general public (Petani et al., 2021).

In the future, notarial and creative accountants could replace currently employed accountants as technology continues to transform the profession (Fettry, 2019). This transition necessitates accountants to acquire a diverse set of skills and competencies relevant to their profession as they navigate through this evolving landscape. Although the fundamental roles and responsibilities of professional accountants will remain, certain tasks might be undertaken by AI-powered technology, resulting in substantial alterations in the tasks and skills demanded within the accounting domain over the next decade (Leitner-Hanetseder et al., 2021). This implies that individuals must adeptly utilize digital technology and collaborate effectively with AI-based tools to assume various new responsibilities.

It is truly captivating to witness the diverse range of methods through which financial services are being provided in today's world. The advent of electronic banking options, such as internet banking, mobile banking, and Automated Teller Machines (ATMs) of various kinds, is paving the way for new and thrilling technologies, paving the way for traditional delivery methods to be replaced. These cutting-edge innovations are providing financial firms with that competitive advantage that is vital for their very survival. In fact, studies have indicated that companies that adopt innovation as a core value tend to perform better overall.

Digitalization has had a notable impact on how accountants approach their profession, with many recognizing its and the accounting profession faces both advantages and obstacles while adapting to the technological revolution (Fettry et al., 2019). As the global economy continues to transform at a swift pace, it becomes crucial for the accounting field to equip its professionals with the necessary information, skills, and competencies to support businesses in sustaining economic growth and competitiveness accounting professionals (ACCA, 2016). Automation of financial processes is increasingly focused on streamlining end-to-end processes across various business areas. The financial industry has been slow to adopt blockchain technology due to its cost and lack of proven applications. However, financial leaders are still attracted to the benefits of blockchain, such as increased cybersecurity and automation.



Figure 1. Conceptual model - innovation, accounting and finance

The preceding discussions have revealed that past research has employed diverse approaches and theories to investigate the factors leading to and the consequences of technology adoption. These antecedents of influence can generally be categorized into four distinct groups. Finally, we explore some case studies and concrete examples of how social and educational innovations have positively impacted organizational performance, operational efficiency, and the quality of financial information. By analysing these issues, we will highlight how

social and educational innovations (Müller, 2020) continue to shape the future of accounting and finance in the digital age, offering new insights and challenges for both professionals and organisations.

#### Method

The scientific research in question revolves around the rapid acceleration of digitisation in accounting. This phenomenon is influenced by two primary factors: firstly, the limitations on communication between economic and social stakeholders in the traditional face-to-face setting and secondly, the increasing inclination towards virtual activities which significantly influences the decision to adopt digitisation.

Following the methodology proposed by Xiao and Watson, the present systematic literature review (SLR) comprised four stages: (1) the planning stage, which involved establishing the purpose and relevance of the SLR and defining the research strategy; (2) the selection stage, in which the scope of the topic was clearly defined; (3) extracting and processing information related to the defined scope from our selected sources; and (4) analyzing the collected information, which aimed to identify key ideas within each selected article and examine the different perspectives presented. In addition, the analysis aimed to identify any gaps or unexplored areas within existing studies; our goal was to ensure the replicability of the study. This scholarly study addresses the challenge posed by the rapid digitization of accounting in the current landscape, where face-to-face communication between economic and social stakeholders faces constraints, while virtual activities gain significant momentum in shaping decisions to adopt digitization. To explore this phenomenon, the research focuses on a crucial question: is the transition of accounting into the digital domain, encompassing both technological and human resource aspects, driving a paradigm shift in the mission and role of accounting professionals?

#### **Results and Discussion**

In this study, we provided a systematic review of 48 WoS and Scopus papers (See Figure 2), which allowed us to identify the social and educational elements embedded in the recent accounting and finance innovation model. In general, the papers analysed present successful cases in terms of developing digital skills among professionals. The research papers use various application methods and teaching strategies, leveraging both synchronous and asynchronous tools and ICT platforms in the innovation process.

Our team extensively researched various resources to gather information on social innovation and its impact on developing countries. We looked into research papers and reports from renowned institutions and universities to ensure the reliability of our findings. Our inclusion criteria encompassed all developing countries around the world to ensure a comprehensive analysis. Our efforts paid off, as we were able to identify articles that effectively discuss the importance of social innovation and the obstacles that social enterprises encounter.



Figure 2. Papers examined by the years in which they were published

Our literature review highlights on innovation in accounting and finance studies gathered from an extensive search of several reputable scholarly sources, including but not limited to the majority of articles related to our research topic were published in the following journals: Journal of Business & Social Science; Journal of Economic Literature; International Journal of Economics; Economic Journal; Innovation and Development; Journal of Financial and Quantitative Analysis. The papers under analysis span the years 2018 to 2023, with a

significant number published in 2021 and 2022, each comprising 12 publications. Additionally, eight papers were published in both 2018 and 2020. Furthermore, seven articles were released in 2019, and one article in 2023 focused on the same topic as ours.

In today's fast-paced digital age, it's crucial for professionals to stay up-to-date with technological advancements in their respective industries. The financial sector has been slow to adopt blockchain technology (Cooper, 2019) due to cost and lack of proven applications, but its benefits in increased cybersecurity and automation make it an attractive option for financial leaders. As the business environment continues to be reshaped by digitisation, it's important for higher education institutions to equip students with the skills necessary to adapt to the changes brought about by rapid technological development. Automation of financial processes is also becoming increasingly important in streamlining end-to-end processes in various business areas.

Big data, analytics and predictive modelling are becoming increasingly important for informing business strategies and decisions within financial processes. Leveraging this data, ERP systems are now automating a substantial portion of financial processes, with their impact on company operations set to grow significantly by 2025.

ERP vendors are improving their systems with AI (Bui, 2019), machine learning, robotics, and blockchain. This boosts efficiency and reduces cyber attack risks. It's exciting to see the industry progress. This continued integration of next-generation technologies will shape the financial automation landscape and improve overall business operations for forward-thinking companies

Figure 3 presents a comprehensive examination focused on artificial intelligence, finance, accounting, competences, big data, intelligent systems and blockchain, and their interconnections with the accounting and finance sector. This analysis delves deeper into how these information technologies are influencing and shaping the accounting sector.



Figure 3. The analyzed literature presents an overview of key terms related to the subject matter (adapted from Coman, D.M. at all, 2022)

We have successfully identified key competences for innovation, which include digital skills, cooperation, innovative behaviour, accounting and financial literacy, knowledge creation and transfer, communication, creativity, entrepreneurial expertise and technological competence. The accounting reviews highlight major changes not only in accounting science, but especially in accounting that universities need to take into account. The ERP industry is rapidly evolving with the integration of AI, machine learning, robotics, and blockchain. It is imperative for universities to stay ahead of the curve by offering courses in digital technology, globalisation, and regulation. Collaborating with industry partners can aid in preparing students for the future. Scientific research must focus on professional digitisation, technological change, fraud prevention, corporate sustainability, and other emerging areas to identify challenges and opportunities facing the profession. Failure to adapt to these advancements could result in falling behind the competition.

As stated in a recent study, the integration of AI, machine learning, robotics, and blockchain is causing significant changes in the structure and operational processes of organisations. This transformation also affects the overall culture of these organisations. A change in mindset and business practices is expected, especially among the younger generation of entrepreneurs who are eager to integrate IT technologies from their personal lives into their business activities. In order to keep up with these changes, it is important for universities to offer courses in digital technology, globalisation, and regulation. Additionally, industry partners should collaborate with universities to prepare students for the future. Scientific research should also focus on professional digitisation, technological change, fraud prevention, corporate sustainability, and other emerging areas to identify challenges and opportunities facing the profession. Failing to adapt to these advancements could result in falling behind the competition.

This change is driven by the dynamic nature of today's business environment, which is subject to various constraints, including those arising from the current economic crisis. In this context, business entities recognise the growing importance of information accessibility, rapid information dissemination, agile decision-making, mobility and flexibility.

It is expected that by 2025, most competitive companies will have achieved full automation of repetitive financial processes, with the exception of strategic tasks. This automation will be driven by the implementation of advanced technologies such as ERP systems (Trunina, 2018), big data and blockchain. Although the pandemic initially slowed automation due to lack of investment in standardised processes and data architecture, progress has picked up quickly.

Fintech refers to the application of technology-driven innovation in financial services. This revolutionary technological change is profoundly transforming the financial sector and the wider economy, impacting on different aspects of our daily business, from payment systems to monetary policy and financial regulation. As we move forward in this rapidly changing landscape, it is crucial for central banks to participate in ongoing discussions surrounding the nature of money in a digital world and how emerging players will reshape the financial services industry. It is important for all parties to work together to ensure the stability and sustainability of the financial system as a whole.

Digitisation is a transformation that goes beyond simply digitising existing processes or services. It encompasses the various ways in which companies are affected by the use of digital technologies in their workplace and operational environments (Al-Htaybat, 2017). In a broader context, digitisation involves the conversion of interactions, innovation, communications, accounting, business functions and business models into digital formats (Belfo et al., 2015). As one of the most significant and long-lasting transformations in contemporary society, digitisation has already affected many aspects of our lives (Leitner-Hanetseder et al., 2021).

These include general organisational competences such as social, educational, economic and monitoring elements. From a technology management perspective, Abdulmuhsin and Tarhini (2022) take an interesting approach and conclude that in order to successfully implement the innovation model, managers need to foster wise, intelligent and knowledgeable leadership and promote change through strong leaders.

#### Conclusion

In conclusion, while there are challenges, technology integration and digitisation present significant opportunities for accounting and finance professionals. By embracing technology, accountants can elevate their role as strategic advisors, leverage data-driven insights and improve collaboration with stakeholders. The world is in a perpetual state of change and technological advances are continually permeating various aspects of life, production, industries and professions. The implementation of 'smart' technologies in today's world is directly impacting the field of accounting. As we continue to move forward in this rapidly changing landscape, it is crucial for all parties to participate in ongoing discussions surrounding the nature of money in a digital world and how emerging players will reshape the financial services industry. Working together to ensure the stability and sustainability of the financial system as a whole is of utmost importance.

The evolution of the accounting profession has undergone a significant transformation from the use of standalone software and physical documents in the traditional accounting era to the digital era, where accounting processes are moving to cloud-based platforms. This shift has led to a paradigm shift in the role of accounting professionals for business owners, encompassing both business management and communication with government institutions. It's interesting to see how the accounting profession is adapting to the digital economy and embracing new technologies like artificial intelligence, blockchain, and robotic process automation. These emerging technologies have seen exponential growth in recent years thanks to favorable technical and social conditions. It's clear that the financial services industry is rapidly changing, and it's important for all of us to participate in ongoing discussions around the nature of money in a digital world and how we can work together to ensure the stability and sustainability of the financial system as a whole.

The research conducted in this study is of practical value to entrepreneurs, accounting professionals and other business stakeholders as it explores the extensive use of information technologies in their daily activities. However, it should be noted that the geographical scope of the study was limited to the south-eastern part of Romania, which may affect the generalizability of the findings. Also, the research period was influenced by the COVID-19 pandemic crisis, which accelerated the digitization process in all economic and social spheres and which might have influenced perceptions of digitization. We agree that the role of accountants is changing rapidly. In the past, accounting was simply about recording data, but now it involves a much broader set of responsibilities. In addition to having a deep understanding of business processes, accountants must also possess strong analytical skills to perform more complex tasks such as planning, forecasting, and cash flow management. With the emergence of new technologies like artificial intelligence, blockchain, and robotic process automation, it's even more important for accountants to continually develop their skills to stay ahead of the curve and provide the most value to their clients.

In today's business environment, accountants must have the ability to analyse data comprehensively, gaining insight into the factors that influence business performance. They need to be skilled in identifying and meeting customer needs and following up effectively. In addition, using new data formats is crucial to making informed business decisions. Accountants also need to interpret data effectively, providing decision makers with more meaningful and actionable information (Surianti, 2020).

As technology continues to advance, it will not replace accountants, but enhance their expertise, skills and capabilities. By automating routine tasks and operations, technology allows accountants to devote more time to analysing and managing company activities. We agree with your thoughts on how digital transformation will impact accounting information systems.

With technology advancements, accountants will be able to work more efficiently and produce more accurate and timely reports. This will be beneficial not only to the accountants but also to their clients who will have access to more current financial information. The accounting industry is going through exciting times, and I am eager to see how these changes will shape the field in the future. As a result, accountants can focus on making strategic decisions and adding value to the overall financial management of the organisation. Looking ahead, future research efforts aim to expand the study to uncover cultural differences, different behaviours, mindsets and legislative issues related to the progress of digitising accounting and improving professional accounting practices.

#### Recommendations

These research recommendations aim to further explore the impacts, challenges, and opportunities associated with social and educational innovation in accounting. Researchers can contribute to the ongoing development and improvement of accounting practices and education. Despite the challenges, technology and digitalization offer numerous opportunities for accounting and finance professionals. As an accountant, it is imperative to automate routine tasks to free up precious time and resources. This allows me to focus on high-value activities such as data analysis, strategic decision-making, and providing advisory services to clients. By automating tasks like data entry and report generation, I can give undivided attention to delivering value-added services to my clients and help them achieve their business objectives. This shift enhances the role of accountants as trusted advisors, capable of providing strategic insights and guidance to organizations.

# **Scientific Ethics Declaration**

The authors declare that the scientific ethical and legal responsibility of this article published in EPESS journal belongs to the authors.

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