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ACCOUNTING – FROM TRADITIONAL TO DIGITAL

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Abstract
In its classical sense, accounting is considered as the "language of business", being indispensable in substantiating economic-financial decisions, because by recording economic-financial transactions and preparing annual financial statements, accounting contributes to transparency, control and financial efficiency. Accounting has evolved continuously, adapting to the economic, social and technological context. In the context of the rapid evolution of information technology, accounting has entered a profound process of transformation, driven by current trends of digitalization. Traditionally, accounting has been perceived as a bureaucratic field, centered on manual processing of documents and financial statements. With the advent and integration of digital technologies such as artificial intelligence, process automation through software robots, cloud platforms, blockchain and advanced data analytics, a paradigm shift in accounting practice has occurred. Thus, accounting can no longer be conceived without the integration of technology and analytical thinking, which is leading to a redefinition of the accounting profession, the tools used and the relationship between accountants, management and state institutions. The study aims to capture the main challenges of the accounting profession imposed by the implementation of new digital technologies, in order to chart the new trajectory in the training and development of this profession. For this purpose, a descriptive analysis of the new trends in the field of accounting was used with the help of information gathered from various sources such as media, literature, legislative regulations etc.) The results of the research consist in presenting the latest information, which will help us to reach a conclusion on how the implementation of digital technology will change the future of the accounting profession.
Keywords: *accounting, accountancy profession, digital technology, digitalization*
JEL Classification: M40; M41; M49.

1. INTRODUCTION

In its classical sense, accounting is considered the "language of business" (Bloomfield, 2008), i.e. an organised system for recording, processing and reporting information on the economic and financial activity of an entity, with the aim of providing useful information to internal (managers) and external (investors, creditors, tax authorities) decision-makers for assessing performance and financial position, which contributes to transparency, control and financial efficiency. With the "robotization" of accounting, a new term has emerged, namely ***Continuous Accounting***, which involves the inclusion of control, automation, and end-of-period tasks in daily activities. (Emetaram and Uchime, 2021)

Accounting has undergone continuous evolution and has always adapted to the economic, social, and technological context. While in the past, accounting was done exclusively on paper, with a large volume of documents and long processing times, the advent of computers and the first accounting programs marked the beginning of the computerization of accounting, significantly reducing human effort and increasing accuracy. and today, digitalization is profoundly transforming the way accounting information is collected, processed, and analyzed. Thus, today we can talk about "hybrid accounting," which means that 80–90% of repetitive tasks are automated, and the accountant only intervenes as a verifier and consultant, although the global trend is toward automated accounting, with artificial intelligence capable of interpreting legislative texts and learning accounting treatments

2. LITERATURE REVIEW

This study is a continuation of my personal approach as regards concerns related to the evolution of the accounting profession and the training of professional accountants (Apostol, 2019, 2020, 2021a, 2023a), given that the economic and financial environment is dynamic, constantly changing, developing and even innovating. (Apostol, 2021b, 2022a, 2022b, 2023b, 2024a, 2024b)

The digitalization, in general, and accounting digitalization in particular, represents a real interest for both practitioners and theorists in the field, given that there is increasing speculation that the accounting profession will disappear with the implementation of automation in the accounting field. Thus, many studies present the advantages of digitalization accounting (Ashraf, 2025; Baiod *et al.,* 2025; Gu *et al*., 2025; Pragya Sharma, 2025; Yang, 2025), while others also highlight a number of challenges (Bhawna and Gupta, 2025; Karim, D. *et al*., 2025; Tabaku, E. *et al*., 2025), but all of the researched studies have concluded that accounting cannot be 100% automated, because decision-making, responsibility and consulting remain the duties of the professional accountant. (Ghosh and Jose, 2023; Purba A., 2023; Eulerich *et al.*, 2024; Mohamed Saad, 2024; Elo *et al.*, 2025).

3. RESEARCH METHODOLOGY

The study aims to capture the main challenges of the accounting profession imposed by the implementation of new digital technologies, in order to chart the new trajectory in the training and development of this profession. ***Non-participative observation*** was used for this purpose, and ***a descriptive analysis*** highlighted new trends in accounting, using information collected from the most recent and diverse sources. ***The results of the research*** consist in presenting the latest information, which will help us to reach a conclusion on how the implementation of digital technology will change the future of the accounting profession.

4. RESULTS AND DISCUTIONS

Traditionally, accounting has been perceived as a field focused on manual document processing and financial statement preparation. The emergence and integration of digital technologies have generated a paradigm shift in accounting practice.

The digitalization is the process of transforming the socio-economic environment through the adoption, application and use of digital artifacts (Gradillas and Thomas, 2025) or, in other words, the transformation of traditional information and processes into digital format using advanced technologies for automation and optimization of activities. In accounting, digitalization involves the transition from physical documents to digital flows, from manual processes to automated processes integrated into intelligent systems.

In a world where technology is undergoing rapid evolution and development, more and more professions are undergoing radical changes, some even being replaced by algorithms and artificial intelligence. In this context, a legitimate question arises: will accounting disappear in the era of digitalization? To answer this question, we have summarized the main characteristics of automated accounting.

Globalization, efficiency requirements, the need for tax compliance and the rapid development of emerging technologies are a series of factors that have favored the acceleration of digitalization processes in all economic areas, including accounting.

The digitalization of accounting involves the use of the following technologies:

- ***Automation of accounting processes***, namely accounting software, which can automate invoicing, financial reporting etc. and software robots (RPA), which can take over manual tasks such as document processing, data entry into ERPs and bank reconciliation (Plattfaut and Borghoff, 2022).
- ***Artificial intelligence***, which can analyze large volumes of data for fraud detection, financial forecasting, risk assessment etc. and which learns from

previous transactions and can thus identify anomalies or optimize accounting decisions (Hasan, 2022; Khaled AlKoheji and Al-Sartawi, 2023);

- ***Cloud computing***, which allows real-time access to accounting data from anywhere using online platforms, facilitates collaboration between accountants, managers, and auditors, reduces IT costs, because it does not require dedicated servers and provides automatic backup (Dimitriu and Matei, 2014);
- ***Blockchain***, which provides transparency and traceability of accounting records, reduces the risk of fraud, enables real-time transaction verification and provides data security (Eyo-Udo *et al.*, 2025; Pragya Sharma, 2025).

Increased efficiency and reduced processing time, quick access to up-to-date information, reduced risk of human error, improved transparency and internal control and improved decision support through advanced analytics are just some of ***the benefits of digitalization accounting***, while cyber vulnerabilities and data security risks, high initial costs for implementing new technologies, lack of digital skills among staff, resistance to change and slow organizational adaptation etc. are some of ***the challenges and risks*** associated with it (Hentati *et al.,* 2025; Quraishi *et al.*, 2025; Đurović and Dečman, 2025; Valentinetti and Rea, 2025).

The digitalization of accounting is also a consequence of digital regulations and initiatives in the field of taxation and accounting. Thus, the European Union's strategy to modernize public administrations through digitalization and interoperability has led European tax administrations to initiate extensive digitalization processes over the past two decades to combat tax evasion, reduce administrative costs and increase transparency in financial reporting. Relevant examples include ***SAF-T (Standard Audit File for Tax)***, implemented in several European countries as an international standard defined by the Organization for Economic Cooperation and Development (OECD) for the electronic exchange of accounting data from entities to a national tax authority or external auditors (Wikipedia, 2025), ***mandatory e-invoicing***, adopted in some countries, such as Italy (SDI), France (Chorus), Spain (eFakturae) and Poland (KSeF) (Ravari, 2024), as well as ***electronic VAT reporting systems***, such as SII (Sistema Inmediato de Información) in Spain. (Longás Lafuente, 2017) Romania has introduced the ***SAF-T*** reporting obligation, locally known as the ***D406 Declaration***, as part of the National Agency for Fiscal Administration (NAFA) digitalization strategy, which involves the electronic transmission of a standardized set of accounting and tax data to the tax authorities. (Ionescu and Haralambie, 2024) Also, according to NAFA data, it manages other digital systems, namely: ***RO e-Factura***, for issuing, transmitting and archiving electronic invoices in a standardized format; ***RO e-Transport***, for the efficient control of domestic road transport of high-risk goods and international road transport of goods; ***RO e-TVA***, to enable taxpayers to manage and declare value

added tax (VAT) digitally and minimize errors, combat tax fraud and reduce the time allocated to filing returns, among others. Thus, the digitalization of public administrations at European and national level facilitates the automatic transmission of tax data and reduces the time spent on tax control and inspection, but at the same time has a number of implications for taxpayers and accounting professionals, by increasing the level of transparency and control and reducing bureaucracy. They must also adapt technologically by using software that complies with the requirements of the authorities and continuously upgrading their skills.

Based on studies conducted to date, we have found that although there are countries where the digitalization of company accounting is very advanced, there is no country where it is 100% automated, without human intervention. While importing and classifying transactions, repetitive entries, issuing and recording invoices, bank reconciliation and basic financial analysis are operations that can be automated (see software such as Saga Cloud, SmartBill Conta, Xero, SAP etc.), operations such as interpreting tax legislation, atypical situations (litigation, mergers, reorganizations etc.), strategic consulting and legal responsibility remain the responsibility of the professional accountant (Kokina and Blanchette, 2019; Kroon *et al*., 2021; Perdana and Kim, 2023; Mgammal, 2024; Gaitan, 2025).

5. CONCLUSIONS

The digitalization has brought about a paradigm shift in accounting practices and the way that financial data is recorded, processed and analyzed is now completely different from what it was before the development of new technologies. Thus, emerging technologies such as artificial intelligence (AI), process automation through software robots (RPA), cloud platforms, blockchain and advanced data analysis contribute to streamlining accounting activities and increasing the accuracy of financial information. In this context, the role of the accounting professional is changing from that of a simple data operator to a strategic financial consultant, capable of interpreting complex data and providing decision support. At the same time, digitalization imposes new standards of data security and tax compliance through the adoption of systems such as SAF-T, e-Invoicing and electronic reporting to tax authorities. Thus, at this stage of socio-economic development, accounting can no longer be conceived without the integration of technology and analytical thinking and requires digital skills and adaptability to the new requirements of the contemporary business environment.

In conclusion, accounting automation does not mean the disappearance of the profession, but its transformation. Repetitive activities are taken over by technology, but interpretation, analysis and financial consulting remain fundamental responsibilities of the accounting professional, which implies a

redefinition of the accounting profession, the tools used and the relationship between accountants, management and state institutions. Currently, the accounting profession requires a solid knowledge base in finance and taxation, as well as digital, analytical and interpersonal skills and only through continuous training adapted to new requirements will it remain relevant and continue to provide added value to the business community.

References

1) Apostol, C. (2019). Education and health – areas of interest in romania?, *EUFIRE 2019 European Union Financial Regulation and Administrative Area*, Editura Universității Alexandru Ioan Cuza, pp. 349–360.
2) Apostol C. (2020). Viitorul contabilității încotro?. *Culegere de articole științifice IX Edition International Scientific Conference on Accounting, ISCA*. *ISCA 2020*, pp. 19–29.
3) Apostol, C. (2021a). Performance versus welfare. *Conference proceedings The 3nd Economic International Conference „COMPETITIVENESS AND SUSTAINABLE DEVELOPMENT IN THE CONTEXT OF EUROPEAN INTEGRATION",* Technical University of Moldova, Faculty of Economic Engineering and Business. Chișinău, R. Moldova, pp. 171–174.
4) Apostol, C. (2021b). Pregătirea viitorului economist contabil în condiții de pandemie. *Culegere de articole științifice X Edition International Scientific Conference on Accounting, ISCA 2021*. Chișinău, R. Moldova, pp. 7–15.
5) Apostol, C. (2022a). Noua economie – progres sau regres?. *Culegere de articole științifice XI Edition International Scientific Conference on Accounting, ISCA 2022*. Chișinău, R. Moldova, pp. 203–207.
6) Apostol, C. (2022b). "Progress" of life on Earth. *Competitiveness and Sustainable Development*. *4th Economic International Conference 'Competitiveness and Sustainable Development'*, Chișinău, R. Moldova: Technical University of Moldova, pp. 33–37.
7) Apostol, C. (2023a). Repere actuale în formarea viitorului specialist în contabilitate. *Culegere de articole științifice XII Edition International Scientific Conference on Accounting*. *ISCA 2023*, Chișinău, R. Moldova, pp. 265–271.
8) Apostol, C. (2023b). Sustainability - fad or necessity. *Competitiveness and sustainable development - 2023*. *The 5th Economic International Conference "Competitiveness and sustainable development"*, Chișinău, R. Moldova: Technical University of Moldova, pp. 37–42.
9) Apostol, C. (2024a). The current economy - conglomerate of contradictory events. *International Scientific Conference on Accounting, ISCA 2024 XIII Edition Collection of scientific articles*, Chisinau, Republic of Moldova, pp. 272–277.
10) Apostol, C. (2024b). Artificial Intelligence - the technology that transcends our imagination. *Competitiveness and sustainable development*. *The 6th Economic International Conference 'Competitiveness and sustainable development'*, Technical University of Moldova, pp. 98–104.
11) Ashraf, M. (2025). Does automation improve financial reporting? Evidence from internal controls, *Review of Accounting Studies*, 30(1), pp. 436–479.

12) Baiod, W., Light, J. and Hussain, M.M. (2025). Blockchain Application in the Accounting Information System: Advantages, Challenges, and Future Research Directions', in H. Alshurafat and C. Beattie (eds) *Technological Horizons*. Emerald Publishing Limited, pp. 193–219.
13) Bhawna and Gupta, P. (2025). Empowering Financial Efficiency in India: Harnessing Artificial Intelligence (AI) for Streamlining Accounting and Finance, in P.R. Chelliah *et al*. (eds) *Generative Artificial Intelligence in Finance*. 1st edn. Wiley, pp. 407–428.
14) Bloomfield, R. J. (2008). Accounting as the Language of Business. *Accounting Horizons*, 22(4), pp. 433–436.
15) Dimitriu, O. and Matei, M. (2014). A New Paradigm for Accounting through Cloud Computing. *Procedia Economics and Finance*, 15, pp. 840–846.
16) Đurović, M. and Dečman, N. (2025). The impact of digitalization on enhancing business processes in accounting firms. The case of Croatia. *Zeszyty Teoretyczne Rachunkowości*, 49(1), pp. 145–162.
17) Elo, T. *et al.* (2025). Future of knowledge-intensive work: stakeholder perceptions on technology-driven changes in the accounting profession. *Review of Managerial Science*, pp. 1-37.
18) Emetaram, E. and Uchime, H. N. (2021). Impact of Artificial Intelligence (AI) on Accountancy Profession. *Journal of Accounting and Financial Management*, 7(2), pp. 15–25.
19) Eulerich, M. *et al.* (2024). Is it all hype? ChatGPT's performance and disruptive potential in the accounting and auditing industries. *Review of Accounting Studies*, 29(3), pp. 2318–2349.
20) Eyo-Udo, N. L. *et al.* (2025). The Evolution of Blockchain Technology in Accounting: A Review of Its Implications for Transparency and Accountability. *Account and Financial Management Journal*, 10(01), pp. 3467-3478.
21) Gaitan, M. (2025). Perspectiva serviciului financiar-contabil în era Inteligenței Artificiale. *EUROPROIECT ESTATE*. [online] Available at: https://www.project-management-romania.ro/articole/perspectiva-serviciului-financiar-contabil-in-era-inteligentei-artificiale/?utm_source=chatgpt.com [Accessed 22.08.2025].
22) Ghosh, C. N. and Jose, J. (2023). Accounting the Unaccounted: The Future Of Accounting Profession. *The Management Accountant Journal*, 58(8), pp. 87-90.
23) Gradillas, M. and Thomas, L. D. W. (2025). Distinguishing digitization and digitalization: A systematic review and conceptual framework. *Journal of Product Innovation Management*, 42(1), pp. 112–143.
24) Gu, X. *et al.* (2025). CECA: An intelligent large-language-model-enabled method for accounting embodied carbon in buildings. *Building and Environment*, 272.
25) Hasan, A. R. (2022). Artificial Intelligence (AI) in Accounting & Auditing: A Literature Review. *Open Journal of Business and Management*, 10(01), pp. 440–465.
26) Hentati, H. et al. (2025). The digitalization of accounting firms: anticipating pre- and post-implementation technological risks. *African Journal of Economic and Management Studies*.
27) Ionescu C. M. and Haralambie G. A. (2024). Analysis of the Economic Entities Perception Over the Implementation of the Saf-T, in Dima A. M. and Vâlcea S.

(eds) *Reshaping Power Dynamics Between Sustainable Growth and Technical Disruption*. Cham: Springer Nature Switzerland (Springer Proceedings in Business and Economics), pp. 113–129.
28) Karim, D. *et al*. (2025). Artificial intelligence and the evolution of accounting: transforming roles, skills, and professional practices. *Qualitative Research Journal for Social Studies*, 02(01), pp. 17–28.
29) Khaled AlKoheji, A. and Al-Sartawi, A. (2023). Artificial Intelligence and Its Impact on Accounting Systems, in A.M.A. Musleh Al-Sartawi, A. Razzaque, and M.M. Kamal (eds) *From the Internet of Things to the Internet of Ideas: The Role of Artificial Intelligence*. Cham: Springer International Publishing (Lecture Notes in Networks and Systems), pp. 647–655.
30) Kokina, J. and Blanchette, S. (2019). Early evidence of digital labor in accounting: Innovation with Robotic Process Automation. *International Journal of Accounting Information Systems*, 35, p. 100431.
31) Kroon, N. *et al*. (2021). The Impacts of Emerging Technologies on Accountants Role and Skills: Connecting to Open Innovation – A Systematic Literature Review. *Journal of Open Innovation: Technology, Market, and Complexity*, 7(3), p. 163.
32) Longás Lafuente, A. (2017). Suministro inmediato de información en la gestión de los libros del IVA (y II). *Revista de Contabilidad y Tributación. CEF*, pp. 45–100.
33) Mgammal, M. H. (2024). The influence of artificial intelligence as a tool for future economies on accounting procedures: empirical evidence from Saudi Arabia. *Discover Computing*, 27(1), p. 20.
34) Mohamed Saad, A. M. A. (2024). Adapting accountants to the AI revolution: university strategies for skill enhancement, job security and competence in accounting. *Higher Education, Skills and Work-Based Learning*.
35) Perdana, A. *et al*. (2023). Prototyping and implementing Robotic Process Automation in accounting firms: Benefits, challenges and opportunities to audit automation. *International Journal of Accounting Information Systems*, 51, p. 100641.
36) Plattfaut, R. and Borghoff, V. (2022). Robotic Process Automation: A Literature-Based Research Agenda. *Journal of Information Systems*, 36(2), pp. 173–191.
37) Purba A. (2023). Will the accounting profession survive technological advances?. *The Jakarta Post*.
38) Quraishi, M. K. *et al.* (2025). Impact of Digitalisation on Accounting and Auditing in a Developing Country Context. *Open Journal of Social Sciences*, 13(02), pp. 360–381.
39) Ravari, C. (2024). RO e-Factura – noi obligații pentru antreprenori începând cu luna ianuarie 2024. *fireTMS*. [online] Available at: https://firetms.com/ro/blog/ro-e-factura-noi-obligatii-pentru-antreprenori-incepand-cu-luna-ianuarie-2024 [Accessed 22.08.2025].
40) Sharma, P. (2025). The Transformative Role of Blockchain Technology in Management Accounting and Auditing: A Strategic and Empirical Analysis. *Journal of Information Systems Engineering and Management*, 10(17s), pp. 197–210.
41) Tabaku, E. *et al*. (2025). The Evolution of Technology in Accounting and Corporate Finance: Implications for Business Adaptation and Competitiveness.

International Research Journal of Modernization in Engineering Technology and Science.

42) Valentinetti, D. and Rea, M. A. (2025). Factors influencing the digitalization of sustainability accounting, reporting and disclosure: a systematic literature review. *Meditari Accountancy Research*, 33(2), pp. 633–680.
43) Wikipedia (2025). SAF-T. [online] Available at: https://en.wikipedia.org/wiki/SAF-T [Accessed 22.08.2025].
44) Yang, S. (2025). Strengthening Accounting Information Systems with Advanced Big Data Mining Algorithms: Innovative Exploration of Data Cleaning and Conversion Automation. *Informatica*, 49(11).