

ARTIFICIAL INTELLIGENCE – PARTNER OR COMPETITOR FOR THE ACCOUNTANCY PROFESSION?

CIPRIAN APOSTOL

*Alexandru Ioan Cuza University of Iași
Iași, Romania
ciprian.apostol@uaic.ro*

Abstract

Artificial intelligence is having a dramatic effect in all industries in a short time. Accounting is no exception and the question for many is whether artificial intelligence will replace those working in the profession in the near future. Automation of repetitive tasks, advanced data analytics, improved efficiency of the entire accounting process, assistance in compliance with ever-changing financial and tax regulations accompanied by possible job losses due to automation, the need to learn new skills to understand and use tools based on artificial intelligence, dependence on technology are realities of the current stage of practicing accountancy profession. If accounting professionals will quickly adapt to new technologies and learn how to work effectively with them, then we tend to believe that artificial intelligence will be a reliable partner, but, at the same time, there is also a possibility that some will not cope with the challenges of automation and changes in the structure of jobs, and for them, artificial intelligence is only a competitor. The study aims to capture the main challenges of the accounting profession imposed by the implementation of artificial intelligence, through a qualitative analysis of new trends in the accounting field, using data from various sources (media, literature, etc.). The results of the research are to present the necessary information to contribute to the academic debate and to be able to reach a conclusion on how the implementation of artificial intelligence will change the future of the accounting profession.

Keywords: *artificial intelligence; accounting; accountancy profession.*

JEL Classification: M40; M41; M49.

1. INTRODUCTION

We live in an ever-changing and challenging world with a prevailing sense of uncertainty. (Apostol, 2021a, 2022a, 2022b, 2023a, 2023c, 2024a) Globalisation and the galloping development of digitisation are forcing profound transformations in all economic sectors, including the accounting field.

Accounting has undergone several developments over the years, the last major innovation being the creation of double-entry bookkeeping over 500 years ago (Emetaram, 2021), followed by the development of its capacity to produce and transmit a larger volume of financial-accounting information in a shorter time

through automation. Currently, the accounting profession is facing a number of challenges related to changes in the economic environment, technological developments as well as changing regulations. Of all these, the greatest impact has been the latest advances in IT, which have meant that artificial intelligence, defined as the ability of computer systems to simulate human cognitive processes, has progressed beyond what was previously unimaginable and its presence is felt everywhere. It has the potential to revolutionise the way accounting data is processed, analysed and reported, so the infusion of AI into the accountancy profession is a significant one, with its challenges and opportunities.

2. LITERATURE REVIEW

Artificial intelligence involves the creation of intelligent machines that can react in human-like ways (Emetaram, 2021), and the main debate about this is whether the technology will lead to increased human intelligence or lead to increased autonomous intelligence and machine automation (Kwarbai, 2024). The evolution of AI from theory to practice is a rapid one, especially nowadays, and it is accompanied by radical changes in all fields. It brings many benefits and advances in various fields, but it also comes with a number of significant, complex and varied risks, involving technological, social, economic and ethical issues that need to be carefully managed. (Apostol, 2024b) According to some authors (Greenman, 2017), artificial intelligence has a fairly long history of more than 30 years in its application in accounting and auditing.

The accountancy profession and the training of the future accountancy professional have also been debated topics in other studies conducted (Apostol, 2019, 2020, 2021b, 2023b), where various stages of accounting progress, with good and bad, have been reported. But as economic and social processes are constantly evolving and transforming, then accounting also undergoes changes, which is why its study is absolutely necessary to prepare new generations of professionals to adapt to the new demands imposed on them (Suleiman *et al.*, 2020; Emetaram, 2021; Bako and Tanko, 2022; Kwarbai, 2024).

3. RESEARCH METHODOLOGY

The study aims to capture the main challenges of the accounting profession imposed by the implementation of artificial intelligence and to answer the question whether artificial intelligence is a partner or a competitor for the accounting profession, through a *descriptive and qualitative analysis* of new trends in the accounting field, using *data* from various sources (media, literature, etc.). *The results of the research* are to present the necessary information to contribute to the academic debate and to be able to reach a conclusion on how the implementation of artificial intelligence will change the future of the accounting profession. *The research concludes* that some of the activities of the accounting profession can be replaced by an automated system based on artificial intelligence and accountants

not only need to adapt to the use of information technology, but also to adapt to the changing business environment.

4. RESULTS AND DISCUSSIONS

The evolution of accounting is continuous, adapted to the requirements of different stages of socio-human development and always surprising. Whereas in the past accounting records and financial and accounting reporting were paper-based, today they are computer software-based. Moreover, with advances in artificial intelligence-based programming it may be that, in the not too distant future, the use of humans in accounting will no longer be useful as day-to-day operations and record keeping become automated (Greenman, 2017; Suleiman *et al.*, 2020; Zhang *et al.*, 2020; Kwarbai, 2024). Although nowadays, we cannot imagine doing business without the help of this technology, and even though some people might argue that many business sectors, such as accounting, will be taken over by AI-based codes and robots, this is not true. But everyday tasks will change dramatically in the sense that mundane and repetitive operations will be taken over by robots (Suleiman *et al.*, 2020; Nayak and Sahoo, 2021), and human expertise will be required at a higher level for decisions that require judgment. (Emetaram, 2021) Thus, accounting professionals will have to adapt to the new demands, and acquiring skills related to the use of IT tools and techniques in accounting gives them a better chance to survive and even thrive in this period (Suleiman *et al.*, 2020; Kwarbai, 2024).

Starting from a number of aspects, such as: computers can work much faster and more accurately than humans and are much cheaper to operate and maintain compared to humans; humans are prone to personal biases and judgements that may overshadow their professional requirements, whereas computer software is not, some authors have concluded that artificial intelligence is more useful and reliable in the accounting field than the accounting professional (Suleiman *et al.*, 2020), and others that it has a significant positive effect on data analysis, anomaly detection and reporting accuracy (Kwarbai, 2024) Moreover, some authors (Suleiman *et al.*, 2020; Emetaram, 2021) present a number of aspects, which describe the current stage of accounting development:

- Even if the initial cost of implementing artificial intelligence is extremely high, in the long run, the total cost of ownership decreases and the need for employees becomes lower. This is beneficial for accounting firms by reducing costs, but can be a hindrance for new accountants and accounting graduates;
- The accounting scandals of the early 21st century, involving accounting firms (e.g. Arthur Anderson), would not be repeated if artificial intelligence-based programmes were used, which complied with all accounting standards;

- Colleges and high schools should review their curricula so that students and pupils have access to new courses to help them better adapt to the new changes, and teachers should have a solid knowledge of international accounting and financial reporting standards and need to constantly update their knowledge and skills (Luo *et al.*, 2018);
- Accounting professionals need to focus on developing their professional skills and adhering to ethical standards set by accounting bodies around the world;
- The current stage of development, as well as the future one, is characterised by the use of information technology in all areas, including business.

The use of AI technology cannot be avoided by firms, which is why accountants simply need to integrate it to maximise professional output and become more valuable to both their clients and the world (Bako and Tanko, 2022). In this regard, some authors also make a number of recommendations for a good integration of AI in accounting, such as Emetaram (2021):

- Improving accounting professionals' knowledge of artificial intelligence;
- Collaboration between AI researchers and accounting researchers;
- Use and development of more complex artificial intelligence applications (e.g., neural networks, expert systems, fuzzy systems, etc.);
- Strengthening cyber security in other areas to adequately protect and support system security;
- Assigning responsibility for technical support on the proper functioning of the technology to senior management.

With the implementation of artificial intelligence in the accounting field, a new term has emerged, namely Continuous Accounting, which involves the incorporation of control, automation and period-end tasks into day-to-day activities, allowing the pace of accounting to finally align with the pace of business (Emetaram, 2021).

The integration of emerging technologies (e.g., Big Data, Machine Learning, Artificial Intelligence and blockchain) into the accounting field has brought about profound changes in the accounting profession, such as redesigning accounting procedures, reducing errors and distortions in accounting information, increasing accounting efficiency and promoting the transformation of accounting career structures (Zhang *et al.*, 2020).

Considering the fierce competition in accounting in general and auditing in particular, it could not be possible for the Big Four companies not to embrace the new technologies. Thus, we can highlight some characteristic aspects of each company, as follows (Zhang *et al.*, 2020):

- *Deloitte* has developed several applications based on advanced technologies:
 - An Information-Driven Organisation (IDO) framework, which integrates daily analytics, data and reasoning into decision making, helps to improve the speed and quality of decision making while reducing decision costs;
 - A voice analytics platform called Behaviour and Emotion Analytics Tool (BEAT) to monitor and analyse voice interactions;
 - An automated platform for document review using cognitive technologies that can automatically read and identify relevant information from a set of documents.
- *PricewaterhouseCoopers* (PwC) has a diverse portfolio, such as:
 - Uses Robotic Process Automation technology to collect data and determine the accounting status of all entities, review financial statements, and convert data into tax bases;
 - Has its own AI audit lab to improve audit quality, automation levels and operational efficiencies and to maximise AI technology's ability to collect comprehensive information and data for quick and accurate analysis;
 - Created the GL.ai. robot to check every uploaded transaction in milliseconds and identify anomalies and suspicious transactions in the general ledger;
 - Deployed Quill's AI Power engine of narrative Quill science to automate customer insight reporting;
 - Developed automated narratives for anti-bribery and anti-corruption (ABAC) reporting.
- *Ernst&Young* uses:
 - Robotic Process Automation (RPA) and Natural Language Processing (NLP) technologies;
 - Drones to help with stock observation and real-time analysis (such as optical feature recognition);
 - An intelligent categorisation engine to quickly compile relevant information;
 - Machine Learning technology to detect fraud.
- *Klynveld Peat Marwick Goerdeler* (KPMG) holds a generous portfolio, such as:
 - Global Expertise Centre, providing complementary resources to local teams;
 - “KPMG Ignite”, which functions as a data analytics processor and provides unbiased estimates and continuous testing for prototype development and innovation, as well as a framework and guidance to

answer employee and client questions about artificial intelligence applications;

- Two special internet and data security departments: one is responsible for designing the company's software and testing network security, and the other for data protection and instant response to cyberattacks;
- dynamic risk assessment combines actuarial theory, complex algorithms, advanced mathematics and data with analytics to identify, connect and visualise four-dimensional risks;
- "K-analyzer", a tax analysis software capable of analysing thousands of transactions in minutes;
- An FBT Automator robot that is capable of performing analyses of project and registry data, including interactions with business systems such as SAP and Oracle to access backend data, and preparing FBT for return-to-work files using numeric coding and fuzzy word matching;
- Payroll Tax Automator tool, which automatically populates payroll codes and assigns payroll codes to the correct payroll tax type, and can run data analytics on monthly payroll tax returns and annual payroll tax adjustments to ensure compliance with initial filing and generate a central repository for payroll taxes;
- KPMG's Automatic Exchange of Information (AEOI) reporting tool, which uses hundreds of data validation checks to create and embed the XML files required for filing.

The use of Big Data, Machine Learning and Artificial Intelligence technologies by the Big Four accountancy firms confirms that the accountancy profession is increasingly investing in AI and integrating it into the core business, as this technology is a key factor for success in this field.

5. CONCLUSIONS

The daily tasks in accounting will change dramatically, which is why the professionals who will endure, and even thrive, are those who possess skills related to the use of IT tools and techniques.

Several authors (Suleiman *et al.*, 2020) have concluded that in the future, the focus will shift to analysis rather than simply entering financial data, while others (Emetaram, 2021) argue that human expertise will be required for decisions that require judgement.

Although the efficiency, speed and accuracy of Artificial Intelligence have yet to be equalled, they are useless without human interpretation. Human creativity and imagination cannot be replaced by AI-based programmes. Even though they have a great number of advantages compared to humans, there is always a deep fear that in case of any disruption of this artificial intelligence

system, the whole economic system could collapse, which is why experts recommend that for economic and financial decision-making, artificial intelligence should not have exclusivity.

The accounting training programme will have to be revamped, adapted to new market requirements and include subjects related to programming and the use of artificial intelligence for routine accounting functions.

All these changes will not only not lead to the disappearance of accountancy professionals, but on the contrary will increase their productivity and improve their skill sets.

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