The Impact of Information Technologies on the Activity of Accountants

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Abstract

Task automation, predictive analytics, changing employee missions, new working methodologies, new digital tools, the health crisis will force organizations to adapt their working methods and accelerate their digitization projects.

The aim of this paper is to present the impact of digital technologies on the activities of companies. Its potential influence could revolutionize our economic systems: the blockchain is the bearer of profound transformations in many fields of application. It can be a threat, in its intentions or in its use, by creating trust systems based on mathematical laws that would be free from democratic requirements or an opportunity for democracy, if used properly.

The accountant of the future will need to develop interpersonal skills and data analysis skills to understand how algorithms work. This change in required missions and skills is a lever for attracting and retaining talent, as professionals will be able to devote more time to higher value-added missions.

Key words: Accounting, artificial intelligence, Blockchain, smart contracts
J.E.L. clasification: M40, M41, M49

1. Introduction

Nowadays, the business environment has become extremely dynamic due to the rapid changes in the field of information technology, determined by competition and performance. New technologies are designed to cover a wide range of economic requirements, such as Big Data, data analytics, mobile technologies and cloud computing platforms, all designed to provide flexibility, economies of scale, mobility and more accuracy. The accounting field is subject to this new era of change. The IoE (Internet of Everything) era is reshaping the accounting profession, following the current needs of organizations. Artificial intelligence and process automation take over redundant and repetitive tasks performed by professionals, creating space for more complex activities such as analysis and business consulting.

The interest of this research is thus justified on three theoretical, methodological and practical levels. At the theoretical level, in addition to contributing to the general debate on the effectiveness and efficiency of new audit technologies, this research makes it possible to identify the success factors and risk factors of using these new techniques. Also, despite the widespread use and increasing importance of these technologies, little effort has been made to determine the effects of electronic file managers on auditor performance as a dependent variable.

Methodologically, our study will support the analysis of the links between information technology and individual performance in a financial statement audit task. Performance will be measured, among other things, by productivity, but also by other measures, such as the reliability of the auditor's opinion and the quality of the service provided through this use.

At a practical level, this work should help auditors better understand the impact of the use of new information technology on the audit engagement. Specifically, we hope that auditors will find in this research a theoretical framework that will allow them to assess the impact of these tools on the performance and quality of their reasoning. Indeed, the analysis of the results of this paper will make it possible to present some recommendations that could help increase the contribution of IT

techniques to the success of audit missions by promoting a more efficient and effective use of these applications in the audit mission.

These recommendations may relate to the training of auditors, the adaptation of IT applications to the specific needs and constraints of the audit engagement. This understanding of the phenomenon, as well as the proposed recommendations, will help auditors in their audit process and allow audit firms to be more competitive, while responding more appropriately to the needs of their clients and formulating better informed opinions.

2. Literature review

The impact of information technologies on the activity of professional accountants, namely the way in which new technologies reshape the accounting and auditing profession, respectively the methods used by them, is gaining more and more ground. Artificial intelligence (AI) emerged as a result of Big Data and Data Analytics (BDA) to turn data into intelligent analysis, along with the RPA of automated robotic processes (Vasarhelyi et al., 2015). For the accounting and auditing profession, specialized publications attest to the need to know how these technologies streamline and accelerate economic processes, to simplify procedures and tests performed in audit missions, to reduce redundancy of daily activities, to improve the organizational performance of the company professional: accounting and auditing and client entities, increasing the quality of financial reporting activity and reducing the level of audit risk.

That is why it is very important to determine the strengths and weaknesses that influence accounting activities, but also the advantages that new technologies have, in order to make the most appropriate decisions regarding accounting actions.

The technology used by accountants to express an opinion has evolved considerably. Until the 1930s, they saw their work as an audit, often exhaustive, of accounting records. Practitioners then developed, in the period 1940-1960, a structured approach to auditing. This modern, more analytical approach integrates, since the 1950s, a perception of risk derived from the theory of statistical decision.

The emergence of new information and communication technologies leads practitioners and researchers to re-examine their framework and reflection in all areas of management. The financial auditor, which is at the heart of the legal and contractual framework for regulating financial information, cannot be exempted from this review. In fact, the financial audit is assigned objectives of efficiency and relevance in carrying out missions, the purpose of which is to reduce the information risks of the various actors of the company, in particular by removing the hypothesis of financial information asymmetry between managers, shareholders and third parties in general.

At the same time, market pressure over the past two decades has led audit firms to provide more competitive services. Audit firms seek to be more competitive by providing quality services and improving their overall efficiency. Thus, their growth potential depends on how well they build and maintain a quality audit: (Richard, 2000). This concern has been at the root of the search for more productive and efficient tools.

The most commonly used traditional techniques to certify the sincerity and regularity of financial statements are: statistical surveys, interviews, questionnaires, functional charts, task analysis grids, flow charts, etc. These techniques, often performed by hand, are characterized by their complexity and deficiency.

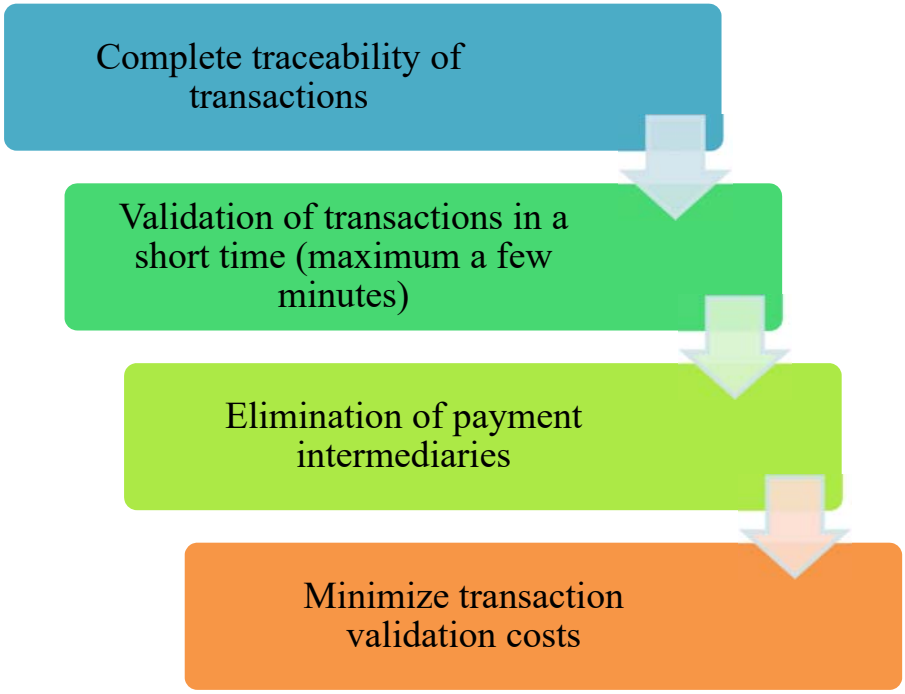
To make up for the shortcomings of traditional methods, new information technologies offer treatments and help in solving the right problems: word processing systems, database processing, electronic spreadsheets, graphics software and some specialized tools such as planning software, software statistical sampling, decision support. systems, expert systems and electronic file managers developed by the Big Four. However, the contribution of these new technologies to the formulation of the auditor's reasoning and to the quality / cost ratio of the audit engagement is worth exploring.

The evolution that has been registered in all fields of activity also affects the accounting sector, and standardization could provide answers to several problems related to digitization: interoperability, development of the Internet of connected objects, Blockchains (and their applications), big data, working conditions , cyber security and protection of personal data, support

for new regulations (eg GDPR - Payments Directive), the key role of digitization that influences the external environment (Atzori et al., 2010).

Representatives of the accounting and auditing profession in our country are encouraged to keep up with the progress of new technologies, as they have the opportunity to evolve, learn and capitalize on the already proven ability to adapt to the needs of a rapidly changing business world. The applicability of new technologies is in the development phase and still at the documentation level. For more in-depth and implicitly more accurate analyzes for small businesses and the business community, it is important to find answers to the following questions (Figure 1):

Figure no. 1 Representation of the opportunities presented by new technologies



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With the advent of the digital age, the mechanisms of business have changed, with managers trying to constantly adapt to this world, due to the large volume of data they operate with. (Matthews, 2006).

The business is based on information. The sooner they are received, the more accurate and better they become. Blockchain is ideal for disseminating this information because it provides immediate, shared, and completely transparent information stored in an immutable registry that only authorized members of the network have access to. A blockchain network can track orders, payments, accounts, production, and more.

The evolution of the audit activity, the increase of the volume, speed and variety of data, but also the rapidly evolving technologies raise questions about the relevance and applicability of the traditional financial audit model (Appelbaum et al., 2017). These new technologies require the development of digital activities that express a need for professional training in correlation with the evolution of these technologies. The research contribution also provides guidance for future research on identifying the means and skills needed for appropriate professional training that can work with these new technologies.

3. Research methodology

The topic of the paper is the challenges and prospects of using emerging technologies such as Blockchain, with a particular focus on the factors that influence the quality of financial reporting and the new modified role of the professional accountant. The added value of the research aims to highlight the impact of the use of intelligent procedures and the quality of financial information showing how they contribute to filling the gap in the perception of the public interest on responsibilities.professionals in the financial-accounting field.

Qualitative research was used to carry out this paper, the aim of which is to develop concepts that help to understand social phenomena in natural environments (rather than experimental), giving due emphasis to the meanings, experiences and opinions of all participants. (Mays and Pope, 1995, p. 43).

Conducting qualitative research is a way of looking at social reality; data sources were used, such as observations, document analysis, images or videos, etc. In the social sciences, the use of qualitative data is also closely linked to various paradigms that seek to develop the vision of social reality, to provide an understanding of the benefits of using new technologies in a sensitive socio-economic context.

4. Findings

4.1. The digital revolution: premises for the formation of a solid accounting system

Advances in information technology (IT) have made it possible for organizations to rely more and more on information technology to carry out activities that were previously done manually. This spectacular technological revolution is taking place in a socio-economic context characterized by the globalization of trade, the accelerated pace of innovation, the growing segmentation and diversification of markets, the complexity of political and social variables and increasing ecological values, which are as many threats as opportunities. for companies. Indeed, the explosion of multimedia, the digitization of sound and then image, and the deployment of fiber-optic and satellite broadband networks are shaping the contours of the third millennium society, which is the information society. The information and immaterial society, the primary source of knowledge, becomes the source of economic strength and wealth for the individual and, subsequently, for the entire nation. This society will be built around electronic means commonly referred to as "information highways" that turn the whole world into a global village.

Today, almost all organizations use computers in their daily work. As computers become smaller, faster, easier to use, and less expensive, IT improvements have improved, and computerization of accounting work will continue. Accounting systems that were previously done manually can now be done with the help of computers. Therefore, the improvement of information technology has facilitated the use of cost management and accounting procedures. The ongoing revolution in information technology (IT) has had a significant influence on the quality of the accounting information system.

The accounting information system has undergone changes due to their computerization. All existing businesses use ICT and computers to carry out their activities, so it has facilitated the use of cost management practices.

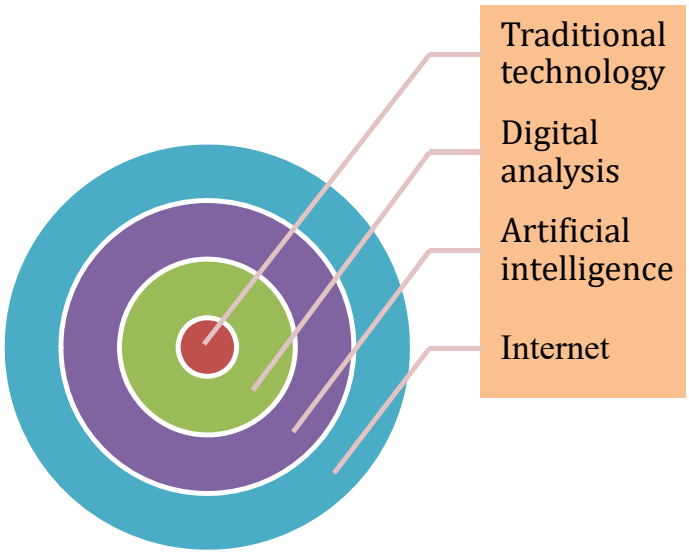
In other words, accountants are now able to do business more efficiently than ever before. The Accounting Information System (SIC) contains the components and elements of several important accounting programs, for example the banking information system aims to respond to the financial data provided through its accounting software for extracting accounting information in the form of reports, documents and statements. for all beneficiaries of the system. After the industrial revolution of the twentieth century and the development of information technology, the computer appeared on the scene as a central part of the computer revolution, which helped to highlight the information that was stored in books, large documents . In fact, the accounting activity does not differ much from one organization to another and cannot be related to a certain type of entity (public or private) or activity (department - commercial - industrial). Financial transactions performed in a company are characterized by repetitive and continuous movements, so it is necessary to centralize this financial

information in the missions carried out during the accounting periods of data entry and processing, then the transformation of this information (accounting) in the computer system in the form of analysis documents, which confirms the obvious importance of the computer as a mainstay in the accounting information system. The importance of accounting information in the decision-making process is clear by having the right time (access time) and ownership of the accuracy needed to be able to rely on decisions to help them. Accounting information useful to decision makers should be available where appropriate, including on the basis of reliability, and also include specific features of the quality of accounting information, which implies the need for timely and real availability of the various properties of accounting information.

The accounting information system plays a pivotal role in the search for the elements that contribute to the improvement of the information quality in order to achieve the objectives and purposes. The developments that have taken place in the world today through the use of information technologies have positively influenced the field of accounting and have also favored the development of research in the field of accounting, but also the measurement of the impact of these technologies on accounting information systems. At the beginning of the 21st century, most companies, especially large ones, have invested in information technology for managing financial operations, as they can discover the results of investing in information and communication technology to measure the relationship between technology and performance and its effect. on SMEs. Accounting is one of the areas that has benefited from information and communication technologies, either by entering, processing, storing data or reporting a mechanism, or by their effects on different branches, such as auditing, cost accounting, etc., information. and communications technology would also have an effect on the company's relationship with third parties as well as its financial market relations. What is certain is that accounting information systems are systems open to the external environment, so they are affected by this environment, for this purpose it has become necessary to take into account the effects that can influence accounting information systems.

Consumer preferences are constantly changing, as is the number of organizations that want to do business at the lowest possible cost. The future of these businesses is determined by the opportunities offered by the use of the Internet, of information technology, which represents the transition from manual to digital work. (figure no.2)

Figure no. 2 Traditional technology, digital analysis, artificial intelligence and the Internet, prerequisites for the future of business activities



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The consequence of the development of the concept of electronic administration, robotics and automation in the industrial sectors and the transfer of services from the traditional area to the digital area determined the estimate that approximately 60% of existing jobs in Romania could be influenced by the digitalization of the economy. In our country there are concerns in the sense of encouraging the involvement of technology in business activities. The key concepts around which projects and actions are developed are innovation and entrepreneurship, supporting technology companies, as well as cross-sectoral collaboration, by activating working groups: e-Health, Smart City, Smart Mobility, e-Learning and Open Innovation 2.0.

4.2. Blockchain technology - improving real-time accounting services

Developed since 2008, blockchain is primarily a technology for storing and transmitting information. This technology offers high standards of transparency and security because it works without a central control body.

Specifically, the blockchain allows its users - connected to a network - to share data without an intermediary. Blockchain is a shared and unalterable registry that facilitates the process of recording transactions and tracking assets in a trading network. An asset can be tangible (a house, a car, money, land) or intangible (intellectual property, patents, copyright, trademark). Virtually anything of value can be tracked and traded on a blockchain network, reducing the risks and costs for all parties involved.

A blockchain is a register, a large database that has the particularity of being shared simultaneously with all its users, all of whom are also holders of this register, and who also have the ability to record data according to specific rules. . a very secure computer protocol due to cryptography.

In practice, a blockchain is a database that contains the history of all exchanges made between its users since its creation. There are many benefits to using the blockchain, including:

• the speed of transactions due to the fact that the validation of a block takes only a few seconds to a few minutes

• system security, which is ensured by the fact that the validation is performed by a set of different users who do not know each other. This helps to protect against the risk of intent, as the nodes monitor the system and control each other

• the productivity and efficiency gains generated by the fact that the blockchain entrusts the organization of exchanges of an IT protocol, which mechanically reduces the existing transaction or centralization costs in traditional systems (financial costs, control or certification costs, recourse to intermediaries that are remunerated for. their service, automation of certain services, etc.).

Blockchain is one of the technologies that can be said to go beyond the technical market, the financial market and regulatory challenges. New technologies have the potential to shape the nature of today's accounting and can be a significant way to automate accounting processes in accordance with regulatory requirements.

5. Conclusions

Blockchain is a transparent and secure information storage and transmission technology that works without a central control body. It is the technology at the heart of the decentralized web and its corollary, decentralized finance.

For finance and accounting, the blockchain actually appears as a reliable source to secure exchanges. Each transaction will be recorded and will not be deleted. This traceability, security and inviolability is possible by exchanging an encryption key between two recipients and recording the transaction in a chain.

The blockchain will make it possible to speed up the audit once we have real-time data, reliable, reliable data, and therefore be able to perform thorough checks and do so in near real-time, so a faster audit with a higher opinion and a higher level of assurance.

Accountants will become the guarantors of the proper functioning of the system and will have to ensure its maintenance. This also implies the need to change information systems. Monitoring technological developments, in particular through working groups, will soon become part of the accountant's work.

Whether you are an accountant, manager or auditor, changes in roles and professional practices will not take place without new skills and without the reorganization of accounting departments and audit firms.

Blockchain skills are now easy to identify: knowledge of computer languages and computer security systems. This observation raises a question: should accountants, managers, and auditors be trained in these techniques, or should we consider associating them with an IT algorithm and development expert? If the answer is difficult today and depends on the importance that the Blockchain can take in companies' practices, it seems at least inevitable that these functions can read and understand the code of a Blockchain, which involves a change in initial training and the creation of new offers. continuous training. Thus, the audit profession itself could slip into information systems with the birth of an area of audit expertise dedicated to verifying the code and structure of the Blockchain.

This first point involves the second: a reorganization of accounting services and audit firms. Indeed, this reorganization is based primarily on the emergence of a new competence essential for carrying out the activity in these services. Thus, it is very possible to imagine that audit firms and corporate accounting departments see a large part of their employees becoming "computer accountants". Today, such functions already partially exist. For example, management software experts (ERP, SAP, etc.) navigate between these two worlds, but at a higher level (manager, expert).

Previous developments suggest possible ways to develop accounting and auditing practices and professions. Will it be a transformation of trades or the creation of very different trades, but still their replacement? It seems difficult to answer this question, until the evolution materializes, by first going through phases of experimentation and a thorough examination of the advantages and disadvantages of technology implementation.

The technology, widely implemented, is likely to drastically change the organization of accounting and auditing firms. Then the problem of resistance to change will certainly arise, a phenomenon observed in the process of leading a change. This phenomenon will probably be a brake on the adoption of Blockchains and studies in this direction will be relevant.

Beyond this question, the creation of new accounting and auditing services through the Blockchain is very plausible. This last possibility is in our opinion a promising and strategic development perspective for companies, which deserves a concrete examination of its application in the field. Apart from the technical challenges, regulatory uncertainty is now the main obstacle to the adoption of the blockchain, as the regulatory framework is uncertain. The issue of compliance with privacy standards in the General Data Protection Regulation (GDPR), for example, raises questions.

In practice, a blockchain is a database that contains the history of all exchanges made between its users since its creation. There are many benefits to using the blockchain, including:

• the speed of transactions due to the fact that the validation of a block takes only a few seconds to a few minutes

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