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ARTIFICIAL INTELLIGENCE ALGORITHMS APPLIED IN BUSINESS AND ACCOUNTING

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The paper provides an explanation of some terms used in the field of business and accounting when it comes to the implementation of artificial intelligence in these areas. The development of artificial intelligence began in the 1950s, of course at first with small steps, but in the last two years it is developing at the speed of light. In order to understand the algorithms with which artificial intelligence works, I chose to outline the work machine learning, big data, neural networks. The benefits of business and accounting can be observed in easing and reducing the time in data processing. From the applications used in accounting we chose the presentation of AlphaSense, TensorFlow, Kensho, Clarifai. If we think about accounting, that until now it involved archiving on paper, blockchain and cloud accounting intervene towards our help which, thanks to distributed accounting technology, eliminate the need to enter accounting information in several databases.

Keywords: **AI algortihm, Machine learning, Big data, Blockchain, Cloud accounting**

JEL Classification: **M410, M490**

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1. Introduction

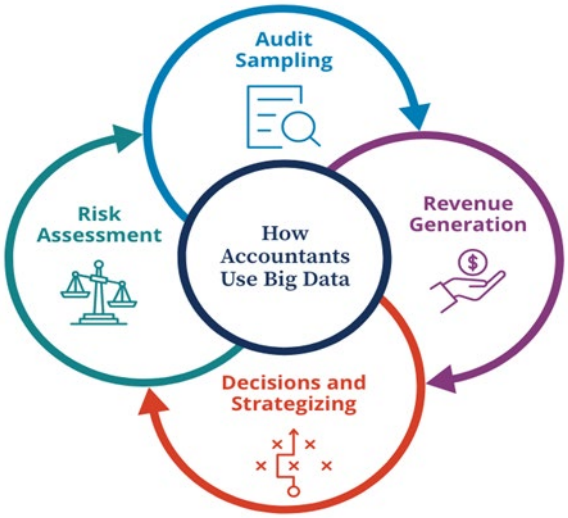
Today's business and accounting challenges are increasingly focused on artificial intelligence. “Companies are striving to exploit this exciting and transformative technology. Clearly, those who are the first to provide business-relevant solutions will gain a significant advantage. The adoption of artificial intelligence in the enterprise has been slow due to various challenges. Business applications address much more complex issues, and the data needed to solve them is less abundant. There is also a critical need to align AI with relevant business processes. In addition, the use of AI requires new engineering practices to maintain and trust applications.” (Luke, et al. 2022)

As digitalization has penetrated all sectors of activity and all organizations regardless of their size, these are facing radical changes. In order to benefit from this novelty, in order to thrive in the new digital economy, data and information must be presented strategically, new approaches are needed, new models of using structural data but also non-structural ones for the decision-making process to ensure profitability and sustainability. These can be best achieved with artificial intelligence, with Machine learning.

Artificial intelligence means the acquisition of human capabilities by the computer, such as reasoning, learning, planning and creativity. The “Father” of computers and artificial intelligence, British computer scientist Alan Turing predicted in 1950 that the computer will have reached the performance of being able to mislead the interrogator in at least 30% of cases by 2000, the interrogator not being able to decide whether the answers were given by the computer or by a human being.

Machine learning is made up of history, definitions, applications and concerns in today's business. Machine learning can be defined as a type of artificial intelligence and computer science that deals with making use of algorithms and data to mimic how people learn, updating their accuracy step by step.

Machine learning is a very important part of the developing field of data science. By making use of statistical methods, algorithms are taught to make predictions or classifications, discovering key information in projects of data mining. Further on, this information results in decision-making in business and applications, also influencing values of key growth. As big data (Accuracy - how verifiable and reliable data is, Speed - how quickly new data is created, Variety - diverse sources from which information is gathered, Volume – quantity of data) continues to grow and increase, the demand on the market for data scientists will become higher, asking them to help identify the most important business questions and then the data will give them an answer. In Figure No. 1 you can see how the field of accounting uses big data, applications vary depending on the type of accounting activity and some of the vital ways in which accountants have put big data into operation.



Source: https://www.efficientlearning.com/blog/big-data-accounting/

Figure no.1. How accounting use Big Data

As machine learning and deep learning tend to be used in an interchangeable way, the differences between the two are worth noting. Neural networks, deep learning and machine learning are all subfields of artificial intelligence. However, deep learning is a subdomain of machine learning, and neural networks are a subdomain of deep learning.

Machine learning and deep learning are different in the way every algorithm learns. Deep learning makes most of the extraction of process features automatic, eliminating some of people's necessary manual intervention and allowing the existence of bigger data sets. "Scalable machine learning" is a synonym for deep learning. Classical machine learning, or "non-deep", depends more on people's intervention to learn. People as experts decide the characteristics to realise the nuances between inputs of data, most of the time needing more organised data to learn.

"Deep" machine learning can use datasets with labels, known as learning which is supervised, to give information to its algorithm, but it does not always need a dataset which is labeled. It can contain data which is unstructured in its raw form (e.g. images, text) and can decide the features in an automatic way. These features differentiate among diverse categories of data. As opposed to machine learning, people's intervention to process data is unnecessary, so we are able to scale machine learning differently. Neural networks and deep learning are mostly credited with enormous progress in fields like speech recognition, natural language processing and computer vision.

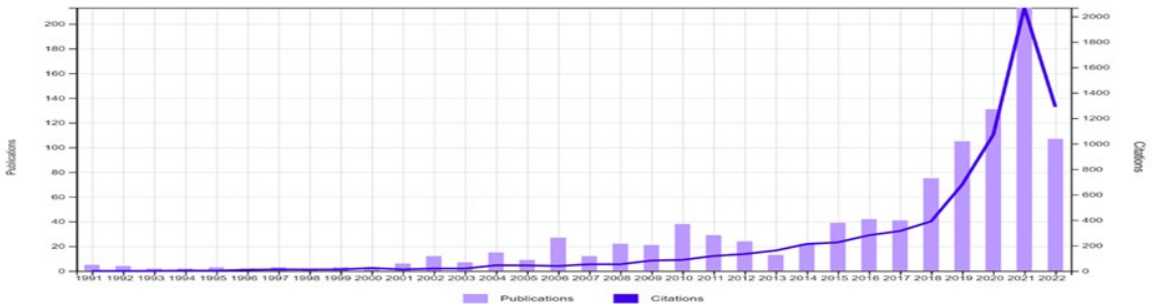
Artificial neural networks (ANNs) or neural networks are composed of a node layer, which contains a layer of input, one or more layers which are hidden, and an output layer. Every

node, or artificial neuron, is connected to another and possesses a threshold and a proper weight. The node is activated if the output of any single node is above the specific threshold value, being able to send data to the next layer of the network. Unless this happens, no data is transmitted to the next layer of the network. "Depth" in deep learning refers to the depth of the layers to be found in a neural network. A neural network which is made up of more than three layers - which include outputs and inputs - can be considered a deep learning algorithm or a deep neural network. A neural network containing two or three layers is called a basic neural network.

2. Theoretical background / Literature review

Reviewing the approaches of several specialists in different fields shows how important it is to analyze the impact of digitalization on the accounting profession of the business. Thus, my goal in this article was to present artificial intelligence and the algorithms with which it enters the business world and implicitly the world of professional accountants.

From the research of the specialized literature it is observed that artificial intelligence has the ability to revolutionize every field of the economy but also the whole society, it becomes a necessity to use everything that means digitization, with the help of WOS Core Collection, after the search engine: AI in business and accounting resulted in 1,039 articles published, of which 381 articles in the field of Computer Science, 99 articles in the field of Management, 95 articles in the field of Business, 82 articles published in the field of Business Finance.



Source: https://www-webofscience-com.am.e-nformation.ro/wos/woscc/analyze-results/

Figure no.2- Evolution of publications on Artificial Intelligence

It can be seen how the level of publications on this topic of maximum interest increases in the times we live in and artisanal intelligence becomes an exciting research topic.

Once artificial intelligence technology has developed, it has entered the field of accounting more and more, having a crucial role in upgrading the competitiveness of the enterprise, controlling and preventing its risks, decreasing errors at work and improving the efficiency of business. (Shi 2020) Accountancy focuses on the production of reliable and important accounting information. These features are mainly based on a sound system of internal control, on the employees' characteristics of integrity and management. (Askary, et al. 2018)

The use of AI in the accounting field has increased considerably in the last years. More companies will integrate these solutions to ease the accounting process, given the fact that techniques are still developing. These solutions should be used as they are able to provide a lot of support by adapting the accountants' skills. Practitioners understand that AI can bring both significant benefits and challenges. There were rapid changes caused by working remotely during the pandemic. However, accountants possess a number of skills that cannot be fully automated. (Costin, et al. 2022)

The study conducted in China also showed the necessity to automate the operations of business during a crisis (e.g. COVID-19). The study was conducted by collecting data through a survey. The results showed that the use of artificial intelligence in budgeting, business models, inventory management and supply chain management is successfully associated with the managers' satisfaction (Yasheng, et al. 2022)

It must be acknowledged that the digital transformation covers a wider area in the sector of finance. (Leitner-Hanetseder, et al. 2021) Interdisciplinary collaboration is a necessity for AI research in auditing and accounting. A more frequent use of AI in auditing and accounting might offer the benefits of productivity, accuracy and efficiency, and as the challenges of wealth and income inequality are lower and unskilled labor and well-known jobs are about to disappear. There is a need for training coming from professional bodies, regulators and educators by considering the paradigm of moving and teaching students, politicians and professionals dealing with world challenges defined by artificial intelligence, blockchain technology and big data, etc. (Hasan 2022)

The impact of artificial intelligence on accountancy cannot be denied. (Zager, et al. 2020) this can also be emphasized following table no. 1 which presents in tabular form the revision of the specialized literature over the last 5 years.

Table no. 1. Literature review for the last 5 years.

Authors	Study purpose	Conclusions
Askary Saeed, Nasser Abu-Ghazaleh, and Yassen A.Tahat. 2018. "Artificaial Intelligence and Reliability of Accounting Information." Hal open science 215-324.	This paper presents the way Artificial Intelligence functions with internal control systems in order to help managers produce qualitative accounting information by decreasing the risk of information. In spite of the variety of research suggested using Artificial Intelligence in auditing and accounting, none of them directly presented the way to decrease the risk of information using artificial intelligence.	This study has contributed to information as follows. Firstly, making use of Artificial Intelligence in eliminating the weakness of internal control systems to produce qualitative accounting information initiative analyzed by this research. Secondly, to reach this, a collaboration of accountants with the expertise of artificial intelligence to develop applications for given internal control systems and functional software, this being an important collaboration.
Van der Voort, H.G., Klievink, A.J., Arnaboldi, M. and Meijer, A.J. (2019). Rationality and politics of algorithms. Will the promise of big data survive the dynamics of public decision making?. Government Information Quarterly, 36(1), 27-38.	How does Big data analytics improve decision-making?	Big data provides large opportunities for decision-makers and analysts so that they can do a better job, but this does not mean good decision-making, as big data gives the chance for actors to - follow their personal interests.
Bakarich, K.M., O'Brien, P. (2020). The robots are coming... but aren't here yet: the use of artificial intelligence technologies in the public accounting profession. Journal of Emerging Technologies in Accounting, 18(1), 27-43.	Public accountants were surveyed to assess how much AI, mainly Machine Learning and Robotic Process Automation are currently used, as well as the impact and responsiveness to the aforementioned technology. Qualitative and quantitative answers from 90 participants coming from various companies.	Digitization has an important impact on the operation of organizations, with a predominant impact on BD results and analysis as part of management decision support. The growth of data and the use of emerging technologies disrupts today's organizations and gives birth to problems in management.
Farcane, N.; Deliu, D. (2020). Stakes and Challenges Regarding the Financial Auditor's Activity in the Blockchain Era. Audit Financiar, 18(157), 154-181.	This paper attempts to present an objective to perceive reality in a positive, organised and rational, manner, examining the present debates related to the new digital era, in order to identify both the advantages and disadvantages or deficiencies of the parts of Blockchain technology and to offer an observation on the way in which these changes would affect the fairness and efficiency of a reporting audit.	Academics, regulators and practitioners must be informed about the latest technology that might disrupt the audit – and business ecosystems.
Janssen, M., Hartog, M., Matheus, R., Yi Ding, A. and Kuk, G. (2021). Will algorithms blind people? The effect of explainable AI and decision-makers' experience on AI-supported decision-making in government. Social Science Computer Review, 2020(1), 1-16.	In this research, the authors used an experimental attempt to make a comparison regarding decision-making in three	The results present that decision understanding and experience are the most relevant factors for people to decide correctly using AI

Authors	Study purpose	Conclusions
	instances: people deciding without any type of help from algorithms, powered by business rules and machine learning.	algorithms.
Leitner-Hanetseder, Susanne, Othmar M. Lehner, Christoph Eisl, and Forstenlechner Carina. 2021. "A profession in transition: actors, tasks and roles in AI-based accounting." Journal of Applied Accounting Research 539-556. doi:10.1108/JAAR-10-2020-0201.	This article relates to the present debates on the digital transformation of society and the resulting changes in work. Using an AI context of accounting, the focus of this paper is on related skills, roles, tasks and actors, at the personal level. The writers consider the effect of AI-based 'intelligence' technology on the workforce in wider accountancy, taking an intra-firm prospect, yet recognizing that digital transformation comprises a wider scope in the sector of finance.	In our paper, we noticed that serious and probable future interruptions based on artificial intelligence. The accounting profession may lead to tasks and roles and opportunities for actors – just as scientists have recognized this trend lately.
Olaru (Coblea) Elena Alina 2021. "Impactul blockchain asupra profesiei contabile." Ceccar Business Review (www.ceccarbusunessreview.ro) 49-58. doi:http://dx.doi.org/10.37945/cbr.2021.03.06.	In our study, we observed that serious and foreseeable future disruptions based on artificial intelligence Accounting may lead to new roles and tasks and thus opportunities for actors – just as scientists have recognized this trend throughout history.	The use of blockchain technology requires that the upgrading of accounting information systems has an impact on terms and parts, with the necessity for a transition in the design of these systems towards advanced applications and digital programs.
Tiron-Tudor, A.; Deliu, D.; Farcane, N.; Dontu, A. (2021). Managing change with and through blockchain in accountancy organizations: a systematic literature review. Journal of Organizational Change Management, 34(2), 477-506.	The purpose of this study is to ease the immersion of blockchain innovation in accountancy by offering instruments that help organizations to deal with change. The study presents blockchain technology through the perspective of organizational change management, with a special focus on the organization.	The study attempts blockchain using the perspective of organizational change management, with a specific focus on accountancy and auditing organizations, and suggests solutions to meet emerging challenges in technology. A real challenge is the implementation of blockchain, usually when a unit is not prepared for the change.
Tiron-Tudor, A.; Deliu, D. (2021) Big Data's Disruptive Effect on Job Profiles: Management Accountants' Case Study. Journal of Risk Financial Management, 14, 376.	The study researches the influence of Big Data, including Data Analytics, on the MA work profile. Looking at the newest professional and academic publications, the study presents the debate on redefining the role of MA in companies in a new informational perspective of Abbott's theory.	The main conclusion of the paper is that MAs have a crucial role in the engagement and diligence of BAs in companies as they move outside the traditions of accountancy based on transactions in the area of analysis. Improvements in the ability to capture, process, store, analyze, visualize and share information will have a lot of importance in how MAs

Authors	Study purpose	Conclusions
		observe their new role(s), particularly how they go about their business, with their duties, responsibilities and tasks daily. This can be thought of as a crucial aspect, as new data abilities qualify the accounting profession to really upgrade decision-making companies.
Costin Viorel , Banța Rîndașu Sînziana Maria, Tănasie Anca, and Cojocaru Dorian. 2022. "Artificial Intelligence in the Accounting of International Businesses: A perception - Based Approach." Sustainability. doi:Https:/doi.org/10,3390/su14116632	Do accountants clearly realise the advantages and challenges of AI? Do they look at AI as a threat?	Practitioners generally understand that AI can bring both significant benefits and challenges. However, due to the rapid changes brought about by working remotely during the pandemic, practitioners may need more support from both employers and professional bodies to quickly adapt to this transformation which will most likely continue.
Hasan, A.R. 2022. "Artificial Intelligence (AI) in Accounting & Auditing: A Literature Review." Open Journal of Business and Management 440-465. doi:10.4236/ojbm.2022.101026	Interdisciplinary collaboration is a must in AI research in auditing and accounting. Larger use of AI in auditing and accounting is expected to deliver the advantages of accuracy, productivity and efficiency, and as burdened with the challenges of wealth inequality and income, the disappearance of unskilled labour and traditional jobs.	Anything that can be transformed into information, as technology analysts say. This information will eventually be replaced by machines. That leaves judgement and imagination, which are only human and are often what differentiates between one company and the other. AI, like databases and spreadsheets, is a tool that is only important if people know how to make use of it to streamline business processes. Auditors and accountants and cannot be replaced by artificial intelligence when it comes to exercising judgment and creativity.
Tiron-Tudor, A.; Deliu, D. (2022). Reflections on the human-algorithm complex duality perspectives in the auditing process. Qualitative Research in Accounting & Management, 19(3), 255-285.	One of the most important issues of this debate is the human-algorithm duality, which is the focus of this study. This paper suggests to research algorithm introduction in audit activities, with a special focus of a future scenario on human-algorithm interaction in performing audits as intelligent teams.	The findings debate the duality between human-based actions and algorithms in the institutional framework of audit activities, emphasizing the current state of emergence of AI, machines and algorithms in auditing and offering real-world examples of their usage in auditing. Additionally, they highlight the strengths and weaknesses of algorithms in comparison to humans.
Yasheng Chen, Biswas Mohammad Islam, and Talukder	The attempt of this paper is the	The findings show that the

Authors	Study purpose	Conclusions
Md. Shamim. 2022. "The role off artificial intelligence in effective **business** operations during COVID-19." International Journal of Emerging Markets. doi:10.1108/IJOEM-11-2021-1666	pressure to survive in a very competitive market by making use of AI, demonstrated the necessity to automate operations of business during a crisis like COVID-19.	use of artificial intelligence in budgeting, business models, supply chain management, inventory management is associated with manager satisfaction.

Source: own processing

3. Methodology

The topic chosen for this paper is the perspectives and challenges of using artificial intelligence, with a focus on the influencing factors regarding their role in business and accounting. Most of this work is has an important research at its core, such as debates on algorithms applied to business and accounting. The study was carried out making use of qualitative methods of research, the decision to use such methods at the expense of quantitative ones, finding its counterpart in the fact that the latter would not offer any analysis and evaluation of the evolution of artificial intelligence and its extent and none of its relevance in the business environment.

4. Results and Discussion

4.1. AI algorithms applied in business

Artificial intelligence (AI) is directly related to data science, which aims to extract business value from a series of information. This value can lie, for example, in expanding the possibilities of forecasting, knowledge of patterns, informed decision-making. In a narrower sense, AI is algorithms and methodologies for information processing. Artificial intelligence operates on huge matrices, analyzes the received data and develops adaptive solutions based on them.

Artificial intelligence is able to quickly bring business to a fundamentally new level, this is one of its key functions and tasks.

Artificial intelligence responds promptly. In some business areas, the fundamental condition for success is to quickly analyze and respond to data received instantly - for example, in stock market transactions. Unlike conventional algorithms, which cannot independently adapt to new conditions and data without prior training, artificial intelligence offers such an opportunity.

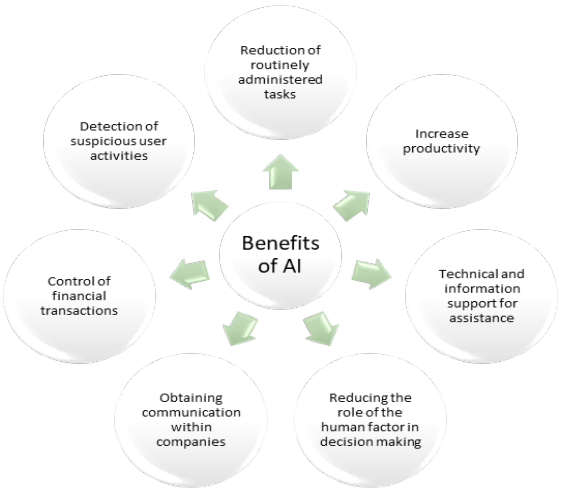
Developing a marketing strategy based on the data and objectives provided. Artificial intelligence helps with the manager's responsibility: it analyzes the experience of earlier sales and it also makes use of forecasts to "predict" future ones and also takes into account the behavior of competitors and the general situation on the market.

The human factor. Even a professional employee who in time gained extensive experience might make bad decisions and have bad days. Artificial intelligence has no emotions – instead of them, it has functions - and technology and information replace a changing mood.

Fight against fraud. Learning neural networks support the analysis of the users' behavior and discover transactions which are suspicious, as well as make algorithms to prevent financial losses. The findings: the system is less vulnerable, and this is a crucial condition for customers' trust.

Profit increase. Only the use of machine learning in the system of pricing can provide a 5% increase in revenue, and with an approach which is integrated, the company's revenue can increase several times.

Machine learning allows accountancy teams to focus on tasks. Developing businesses typically have to process lots of transactions, and tasks, like reconciling all of these transactions and recording them, and it can take hours of employee time each week. With the help of artificial intelligence, companies gain almost unlimited access to new opportunities to expand their operations and increase profits. Even a single algorithm can significantly improve performance, and an integrated approach, all the more, gives good results. With the help of artificial intelligence we can obtain benefits presented in Figure no.2: reducing routine tasks, increasing the productivity of specialists by optimizing work processes, technical and informational support for customers, reducing the role of the human factor in decision making, improving communication within companies, including overcoming the language barrier, controlling financial transactions, detecting suspicious user activities, controlling information security, data confidentiality, developing marketing strategies, forecasting both in the short term and in the more distant future,



Source: *own processing*

Figure no. 3. The benefits of artificial intelligence for business

4. 2. AI models applied in accounting

AI is the result of applications of ML technologies and big data to comprehend the past and foresee the future being based on huge data. In the field of accounting, artificial intelligence is taking on more and more tasks. There is already software that has automated many accounting, tax, accounting and auditing processes (Greenman 2017). In e-applications used in accounting we can mention randomly the following:

AlphaSense is a smart financial search engine that supports professionals who have to deal with a lot of information to solve the issue of data overload. It gives access to research databases and has semantic knowledge of financial language and correlation analysis to open important hidden information. AlphaSense gathers millions of documents, such as Wall street research reports, press releases, news, company profiles, regulatory files, and other uploaded files.

TensorFlow was made and maintained by the Google Artificial Intelligence Team Google Brain, a mathematical system coming from flow programming, which is used in the programming implementation of diverse ML algorithms. TensorFlow can be used in stock market index prediction and in systems of information management, referring to them.

Kensho is a system for real-time statistical computing and a scalable architecture meant to ensure the transparency of the financial institutions' market through technology. Kensho uses massive parallel statistical computing, easy-to-use visual interfaces, and innovative

technologies in predictive analytics to offer investment professionals advanced analytics platforms.

Clarifai is used in combination with a camera system to calculate the number of items left on the shelf by detecting and identifying items and therefore to comprehend the speed of sale of goods. Provided there is too much of an item on the shelf as compared to the remaining amount of the item in stock, it is time to dispose of it, and if it is exhausted, it is time to increase the order amount (Zhang, et al. 2020).

Blockchain is a technology that connects companies or people directly or in a peer-to-peer way. Blockchain as a technology, takes internet connectivity further. Blockchain gives users the true value of the internet. Initially Blockchain was made to secure transactions with Bitcoin, hence it is most often associated with Bitcoin and cryptocurrencies. Blockchain technology supports applications (like decentralized applications or dAPPs) and complex programming (smart contracts). Through smart contracts, the blockchain gives the potential to efficiently undertake different transactions and transfer of property and rights, without intermediaries, such as a bank.

Blockchains and their immediate provision of an immutable record of transactions provide information about shared transactions, synchronized in every location. Such offer of information erases reconciliations at transaction-level.

Because blockchains allow transactions to be recorded and settled immediately as the transaction itself, auditors get real-time information in a consistent, recurring format.

Thanks to distributed accounting technology, blockchain erases the need to enter accounting data in more databases. This saves a considerable amount of time and the risk of human error can be greatly decreased.

Reconciliation of accounting information will not be entirely automated through blockchain, as the expertise and professional experience of professional accountants is needed to evaluate the accuracy of accounting transactions. The ability to trust that both parts record the same basic transaction data and the real-time availability of this accounting information offers huge advantages for the efficiency with which accounting information can be assessed and reconciled.

At its centre, blockchain is a registry system. Decentralized nature and immutability make it unique, but its transaction recording nature makes it known to those in accounting. To support accounting in comprehending blockchain technology, Accounting Blockchain

Coalition (ABC)[1] - develops awareness of digital assets and blockchain, informing their members and stakeholders and providing information in auditing and accounting for digital assets and blockchain. The development of knowledge and comprehending this developing technology and its applications will be important to ensure the relevance of the profession and the training of upcoming generations of accountants.

Thanks to distributed accounting, blockchain technology erases the necessity to enter accounting data in different databases and potentially eliminates the necessity for auditors to reconcile disparate records. This saves a considerable amount of time and the risk of people's error can be greatly decreased. (Singer, et al. 2021)

While blockchain continues to develop and new and different uses are discovered, it will be up to accounting to ensure that its promises of accountability and transparency are fulfilled.

The advantages of using Blockchain by managers:

- efficient accounting by decreasing costs and through different automations (automatic payment of invoices, on delivery confirmation);
- enabling automatic confirmation of transactions with third parties, without the necessity of their actual confirmation;
- important cost reductions;
- the completeness of operations and transactions will be verified in an automatic way.

Also, we can find some drawbacks and risks, such as:

- risks associated with technology (security, human error, excessive confidence);
- legal risks;
- money laundering;
- the prominent relevance of internal controls;
- higher risk of fraud;
- data protection.

Managers have to engage and face the challenges and opportunities of Blockchain.

[1] Accounting Blockchain Coalition - a global coalition of representatives of blockchain industry leaders in accounting, law, taxation, technology and higher education - develops guidelines for accounting for digital assets and currencies that run on blockchain technology. IFAC member organizations, including the Institute of Chartered Accountants of Singapore, the Institute of Chartered Accountants of India, the Institute of Chartered Accountants of England and Wales, CPA Canada, the American Institute of Chartered Accountants and the Institute of Chartered Accountants of South Africa. https://accountingblockchain.net/

Accounting professionals and beyond are asked to check the evolution of blockchain because they possess the chance to grow, learn and capitalize on the proven capacity to adapt to the demands of a developing business world.

The next step will be the demand to rethink the issuance of accounting and auditing standards needed to think in their profession accountants and auditors. To become truly a component of the financial system, the blockchain has to grow, becoming consolidated and standardized. (Olaru 2021)

Cloud accounting (sometimes called online accounting) is a much safer and more efficient option for any organization. The data of an organization can be accessed through any equipment and any location, by any person, provided they have the appropriate accreditations. There is less risk of losing data if something unfortunate happens to the physical servers, such as fire, flood, or anything that could physically damage the equipment called the server that stores the data.

With the digital transformation entering the world of accounting, the roles of professional accountants will also pivot towards data-based financial advice, cloud-based strategies and in-depth analysis. Leveraging the potential of big data, accountants can now focus on planning, controlling, analyzing and anticipating problems before they arise.

Cloud-based accounting is a major leap forward in the industry for more efficient and comprehensive financial analysis and reporting. Found on a remote server, all users send information to the cloud where it is transformed and sent back to the user, allowing accountants to access the data at any time without having to be physically in an office - a feature that has been particularly useful during the pandemic, and home office became normal. The benefits of cloud accounting are multiple, these benefits are presented in Figure no.4.



Source: own processing

Figure no. 4. The benefits of cloud accounting

In addition to increasing accessibility and collaboration to access information and complete tasks anywhere, it also allows for automation of transactions, reconciliation of accounts, matching of bank statements and even payment to suppliers and sending invoices to customers on user-defined data. They provide greater data security than local systems, as the cloud can regularly back up data across multiple servers to decrease the risk of compromising systems and data, and scalability just by adding more server space or new adjustments for additional features and software in the cloud can also halve labor costs. An important trend of the first half of 2022 is using private and public cloud services for information storage and analysis.

Cloud accounting solutions ensure that it is a smooth component with less time consumption, in order to be able to focus on what is really important for the company, on development and economic growth. But we do not necessarily have to choose between accounting in the cloud or in the usual regime on their own servers, in 2020 a study shows that 80% of companies use a Hybrid Cloud working model, which involves moving easily mutable information to the cloud, and other higher security data that cannot be moved or applications that were not designed for the cloud, for example designed earlier, are still kept on physical equipment. The Green Lake service presents the mix, according to Ana Iordache[2], the HPE solution guarantees greater data security than in the cloud.

But the biggest benefit of moving all accounting processes to the cloud or hybryd Cloud work model is the added value it offers.

The Big 4 Accounting Firms[3] launched in 2017 their personal financial robots that are able to recognize data, enter invoices and generate financial reports. These robots are able to replace basic accounting officers, enabling business managers with brief knowledge of accounting to make informed business decisions based on accounting data (Bullock 2017). It is therefore needed to research the present growth of AI applications in accounting. The predominance of AI in accounting is possible to change present accounting practices and inform the growth of the education of upcoming accountants. AI technologies are used in financial difficulties, financial fraud, stock market forecasting and auditing (Gepp, et al. 2018). Improving technical accounting and data analysis skills has become particularly important in accounting practice.

Here's how professionals can thrive in an economy that has changed dramatically in just two short years. Gone are the days when accounting tasks revolved exclusively around manual accounting and accounting reconciliation. The industry has changed rapidly in recent years - and is about to evolve even further. Accounting is now a field fueled by advanced data interpretation systems for well-informed and actionable business prospects.

[2] Ana –Maria Iordache, Business Development Manager HPE, https://www.hpe.com/us/en/greenlake.html

[3] The Big 4 Accounting Firms - https://big4accountingfirms.org/

With digital transformation and data analysis becoming an integral part of the process, accounting is now being revolutionized by technological advances that are changing the nature of the profession and the skills needed.

5. Conclusions

We live the dawn of mass digitization in every field, the business field receives multiple benefits using artificial intelligence and even a simple algorithm can help the decision-making staff of a company.

Accounting, as it was known until now, disappears more and more and the accountant will lose his task to enter the data in an accounting program and in tables for records as accurate as possible, as these will already be available in a Cloud or Blockchain, professional accountants must prepare to accept digitization. I conclude as Olaru Elena Alina pointed out, that professional accountants must reposition as experts to be able to face growing challenges and to support new business models, as a challenge to become experienced and to strengthen their position as a trusted third party, (Olaru 2021), the traditional accounting and education context is developing, but not quickly enough to meet the demands of blockchain. (Tiron-Tudor, et al. 2021)

We must also conclude the vulnerabilities of the use of artificial intelligence in business and accounting, vulnerabilities related to:

1. lack of a legal framework for blockchain
2. security and privacy of the external blockchain
3. the impact of intelligent accounting procedures on professional judgment

The use of artificial intelligence is gradually becoming a necessity in all business sectors, as the volume of data is getting bigger, but the lack of transparency prevents meaningful accountability and control of algorithms, society expects artificial intelligence-based systems to enter people's values such as equality, accountability and transparency, so research in the field of artificial intelligence will become more explicit that will provide solutions based on algorithms and techniques that may be comprehended by human experts (Janssen, at al. 2020) But the question remains: who will be responsible for the errors generated by artificial intelligence?

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