

INTERNAL AUDITING & RISK MANAGEMENT



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INFORMATION BASE ACCOUNTING EXPERTISE IN MANAGERIAL ACTIVITY

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Abstract: *The accounting expertise represents for the management of the economic entity a communication tool in a “universal language” of all the information regarding the results of the mission that are structured in an accounting expertise report. Thus, the accounting expertise constitutes the area of convergence of the activities of creation, collection, processing and provision of information of an economic nature, explicitly of that information of a financial and fiscal nature.*

Keywords: *expertise, accounting, mission, expert accountant, management*

JEL Classification: *M41*

Carrying out the accounting expertise mission implies the responsibility of the accounting expert regarding the way of carrying out the activity, the application of the norms of professional behavior, work and reporting and, implicitly, the opinion formulated to the approved or disposed objectives. It takes the form of a supporting document as well as the legislation opposing them.

Depending on the purpose for which they were requested, the accounting expertise may be judicial, attached to a dispute, requested by the Courts and/or by the Criminal Investigation and Investigation Bodies, or extrajudicial requested by third parties, natural or legal persons.

From the point of view of its object of activity, the forensic accounting expertise has an impact on the accounting information, because, depending on the findings and opinions formulated by the chartered accountant, the

accounting information may be validated or invalidated in relation to the circumstances in which the civil case was raised. In case of invalidation, the accuracy of the financial-accounting information is affected, generating negative consequences, regarding the expert entity (Vasile & Croitoru, 2019, 108-117). Given that forensic accounting is carried out within the objectives set, in the order in which they were intended to be carried out and only for the period set, the objectives must comply with certain characteristics, namely (Vasile & Croitoru, 2021, 34).

- to be clear and concrete, within the limits of the competence and obligations given by the specialist;
- to refer to issues related to the financial-accounting field;
- to focus on the economic sphere of the issue in question;
- **to** be related to the content and circumstances of the case under investigation;
- lead to the clarification and finding of the truth for all unclear aspects of the case file, including the circumstances in which the case occurred;
- not to lead to the legal classification of the act investigated by the specialist.

One of the current examples that is present in the activities of the professional accountant is the completion, validation and transmission of digital files sent to the tax authorities of SPED (public digital accounting system), which is a relevant progress in the system of integration of information exchange between taxpayer, authorities tax and IPED. It is a digital sample processor to replace documents that would be physically available (Leite, 2020).

If the objectives set for the expertise are not sufficiently specified, the designated specialist may request the body that ordered the expertise to define and detail in writing the issues that need to be the subject of the expertise. The examination of documents at the premises of third parties or third parties may be carried out only with the consent and under the conditions approved by the body which ordered the expertise. This rule also applies if the chartered accountant wishes to obtain explanations or interviews with the parties involved.

The accounting expertise properly performed by the chartered accountant contributes to the financial-accounting activity of an entity through the information generated by it, correlated with the relevant legislation, thus causing entrepreneurs to adopt control criteria, without giving rise to different interpretations.

The main purpose of the accounting expertise is to establish the truth of the accounting and tax documents and to provide useful information to management, shareholders, creditors and other interested parties accordingly.

At the same time, in this mission, the major responsibility of the chartered accountant is to determine the users in making decisions.

The quality of financial accounting information is determined by the fulfillment of the qualitative characteristics, respectively relevance, comparability, reliability and intelligibility, generated by the economic and financial transactions involved in the process of obtaining this information. The emergence of the concept of total quality means the conceptual and practical approach of those elements that maintain this concept, including financial accounting information.

In the decision-making process, which aims at customer satisfaction, quality financial accounting information is required, which is also reflected in the mission of accounting expertise.

In conclusion, accounting expertise is the prerogative of competent accounting experts, as they are the main providers of integrated services, including tax services, and the only ones that comply with a Code of Ethics for Professional Accountants developed by the International Federation of Accountants (IFAC).

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LABOR MARKET AND THE PACE OF TRANSFORMATION. HOW TECHNOLOGY IMPACTS EMPLOYMENT

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Abstract: *The labor market has changed fundamentally in recent years. And its future depends on many factors: long-term competitiveness and demographic developments, smart employment regulations, preventive policies in the field, social dialogue, etc. The multidimensional impact of new technologies on society is already being felt. On the one hand, viewed from a favorable angle, transformations generate new opportunities. On the other hand, beyond opportunities, it is generator of many ontological fears. On the other hand, beyond opportunities, many ontological fears are potentiated. 2023 Edelman Trust Barometer, pointed out that about 89% of the working population worldwide is currently worried about the loss of jobs precisely because of the transformations in the labor market. Specialists estimate that intelligent automation will not cause job losses, but they do not rule out changes in their structure. Demands of new tasks will put serious pressure on workers to develop new skills and abilities. Inside an economy increasingly connected to new technologies, 6G internet, cloud services, a simple yet pressing question arises: how prepared is the world's population for the jobs of the future?*

Keywords: *Digitalization, employment, forms of employment, occupational choice, persistence of unemployment, technological change, skill shortages, skill demand, wage inequality*

JEL Classification: *E24, J24, J31, J62, O33*

1. Introduction

In the public space, are being discussed more and more about digitalization, cloud, robots, artificial intelligence, online applications, integrated software platforms, etc. The new technologies have brought fundamental changes not only in the economy, but also in education, culture, communications.

We can currently make payments, but also can take online loans, media is already in online, online stores have appeared and are enjoying great success, we order vegetables and fruits helping us of online images, in real time, directly from the manufacturer. In many ways our lives have changed, especially in the last two decades.

According to experts, in the next ten years robotization and integrated software platforms will smooth the way to the disappearance of most repetitive activities, especially in agriculture, industrial assembly, clothing industry and many other related industries.

The future of jobs 2023 report, published by the World Economic Forum, underline that in the next five years the world market will create approximately 69 million new jobs, but, no less than 83 million will disappear (14 million jobs are estimated to be loss).

Economy of the future will have data instrumentation in the center of developments and will represent the most important paradigm generating of new jobs, companies of the future will be based on jobs capable of interpreting and analyzing information.

Within these transformations, digitalization will be, according to experts, one of the main factors of technological change, stimulating through digital technologies both the process of informatization of production and services, as well as the private sphere.

Experts appreciate that Industry 4.0 (the fourth industrial revolution) has already begun, and the coming changes will be commensurate. It will be especially felt in the production process, but also in how business will be run. The human place in services and production will be gradually taken over by the digital world, and future employees will be forced to use the computer, software applications and perform operations using artificial intelligence.

Being essentially technological change, each of the four industrial revolutions (invention of the steam engine, discovery of electricity, discovery of nuclear energy, digitization) generated, as always, at least two categories of questions:

- a) How technology leads to job loss?
- b) What will be the impact of technological changes on the composition of employment regarding certain industries or occupations? (Ulrich, pp.1).

The big problem that governments, employers and the public will face is that many of the jobs of the future have not yet been precisely defined or invented. The only certainty for the worker of tomorrow is that he will have to have completely different skills, and technical skills, a greater flexibility of thinking in solving problems.

2. Digitalization and the future of work

Without a doubt, economic competitiveness fundamentally depends on technological change, which is one of the main factors of productivity and economic growth. But the discussion of competitiveness cannot abstract from the institutional framework that ensures property rights, supports structural changes and provides an effective system of education, training and social security (North, 1990; Acemoglu and Robinson, 2012).

Moreover, there are certain trends or social processes and phenomena, observable at the global level, that must be taken into account, because they can influence the labor market and must be treated very carefully. For example, if demographic changes determine the level and composition of the workforce, globalization forces countries to specialize in certain products and services, which has implications for the formation of special skills (Ulrich, p. 2).

Started with the invention of the processor, the digital revolution led to the continuous increase in performance. Derived technologies (the computer, the digital mobile phone and the Internet) are already part of our daily life, and the digitization of communication and information processes has led to a real explosion of information (“Big Data”), but also an informatization of the production of services and the private sphere. And future developments in machine learning, artificial intelligence and mobile robotics will lead to even greater computerization of economic processes (Ulrich, pp.2-3).

It is also noticeable the huge dynamics of innovation in field of digital technology that is no longer confined to routine manufacturing tasks but may spread to numerous non-routine tasks in different parts of the economy. It is estimated that intelligent automation will affect in the very near future some highly qualified jobs (doctors, accountants, teachers, lawyers). (Ulrich, pp.2-4).

Digitization will definitely affect the labor market. Specialists have debated at least three scenarios:

- One, more optimistic, sees the economic future of humanity ensured by technologies that will not only replace the human work, but will also ensure general well-being in the long term;
- Another, less optimistic, sees in the future a polarized society, structured according to the 20/80 principle, in which only a minority will generate high incomes, also owning most of the capital (Freeman, 2015);
- A third scenario is fundamentally different from the other two, it sees an economic future that changes will be felt not in terms of labor demand, but rather in its structure, a natural process of continuous adaptation to the new developments specific to digital technologies.

There are too many uncertainties to argue in favor of one of the three scenarios. Technological changes and digitization will certainly produce structural changes in the field of work and it remains of seeing how the labor market will react and if it will be able of adapting to these transformations. Because beyond the fears and pessimism, generated especially in times of crisis, the current transformations can equally create outlets for a multitude of opportunities:

- a) Humanizing workplaces (the dangerous or physically exhausting work replaced by new technologies);
- b) Increasing the pool of jobs for people with physical restrictions by compensating apparent productivity deficiencies with new technologies;
- c) Workplace flexibility for employers and employees;
- d) Changes in the nature of work (Ulrich, p.5).

3. How technology impacts employment in the worldwide

How susceptible to computerization are jobs today? What will be the impact of computerization on the labor market in the near future? How many jobs will disappear due to technology? Is there a relationship between salary and human capital and the probability of computerization / digitization of an occupation?

According the *The future of jobs 2023* report, published by the World Economic Forum, there are some certainties on which we should reflect very carefully for not-too-distant future:

- For the business environment, adopting the latest technologies will be the main engine of economic growth in the next five years;
- The biggest impact in the dynamics of jobs will be largely due to technological transformations and the current trend of the world economy;
 - “Technology is changing the way we work, but concerns about which jobs are lost and which are gained—and who those changes affect—are important in considering whether people will have the opportunity to shift from working in the jobs of yesterday to the jobs of tomorrow”. (Brown, Loprest, 2018)
- Big Data, cloud computing and artificial intelligence will be the ones of leaving their mark on the technological transformation process;
- On the next five years, the impact of the development of new technologies on jobs is expected to be positive;
- Employers anticipate a structural labor market churn of 23% of jobs in the next five years;

- Changes have already appeared in the process of advancing the human-machine frontier, companies reducing the pace of automation in recent years;
- At the intersection of global trends and the processes of adopting new technologies, the heterogeneity of the consequences on the labor market will certainly be visible: while there will be regions with increasing the number of jobs, others will be characterized by their decline;
- In the labor market the fastest-growing roles to their size today are expected to be those driven by technology, digitalization and sustainability;
 - On the top of the list are specialists in artificial intelligence and machine learning, sustainability, business intelligence and information security, as well as renewable energy engineers.
- It is also expected that the roles with the greatest decline in relation to their size today will be those determined by technology and digitization;
 - At the top are positions of secretariat area, bank tellers and related clerks, postal clerks, cashiers and workers who sell tickets, clerks who enter data.
- According to analysts, a significant increase in jobs is expected in education (3 million jobs for teachers in professional and higher education), agriculture (30% increase in the number of agricultural machinery operators) and digital trade (4 million jobs for E-Commerce, digital strategies and digital marketing specialists);
- The biggest decline will be felt in the specific area of administrative and traditional roles (it is expected that by 2027 approximately 26 million jobs will disappear);
- Currently, analytical thinking and creative thinking remain the most important skills of today's workers;
- According to employers, 44% of current workers' skills will be affected in the next five years by technological changes;
 - If by 2027 60% of current workers will need training to survive in the labor market, only 50% of them will have specific training opportunities.
- Even if the big companies are always launching debates on the skills growing the fastest in importance on the labor market, for now they have not been concerned with developing strategies for the improvement and adequate training of their own employees;
- Even there is confidence concerning development capacity of the current workforce, optimism diminishes regarding the prospect of talent availability in the next five years;

- This makes investments in learning and on-the-job training of their employees in the processes of automation and technological change become part of the strategies that large companies will adopt in the future to meet their own objectives;
- Many companies will in the future give greater priority to women, young people under 25 and people with disabilities as part of their own DEI (Diversity, Equity and Inclusion) programs;
- Funding for skills training is seen by 45% of companies as an effective intervention by governments that could get be involved in the near future.

The future of jobs 2023 report also outlines a top of the importance of skills for the jobs of the future:

1. Analytical thinking (68%)
2. Creative thinking (56%),
3. Resilience, flexibility and agility (50%),
4. Motivation and self-awareness (49%),
5. Curiosity and lifelong learning (46%),
6. Technological literacy (44%),
7. Dependability and attention to detail (43%),
8. Empathy and active listening (42%),
9. Leadership and social influence (39%),
10. Quality control (38%).

The top of the evolution of skills for the jobs of the future, according to The future of jobs 2023 report, looks like this:

1. Creative thinking (+73%),
2. Analytical thinking (+72%)
3. Technological literacy (+68%),
4. Curiosity and lifelong learning (+67%),
5. Resilience, flexibility and agility (+66%),
6. AI and Big Data (+60%),
7. Systems thinking (+60%),
8. Motivation and self-awareness (+59%)
9. Talent management (+56%),
10. Leadership and social influence (+53%).

4. Conclusions

- It is very complicated to find a firm answer on how current socio-economic and technological trends will shape jobs in the future;

- The future of jobs 2023 report sheds light on the dynamic nature of the global job market
 - by exploring the jobs and skills of the future, tracking the pace of change. According to him:
 - On the hand, macro trends, the green transition, the adoption of ESG standards and the localization of supply chains, are the main factors influencing job growth;
 - On the other hand, any type of economic challenge (high inflation, slow economic growth or supply shortages), represent the biggest threats;
 - The data shows the roles with the greatest increase are in the field of technology and digitization, while those with the greatest decrease are those in the administrative area;
 - At the beginning of 2023, only 34% of tasks were automated;
 - New paradigms specific to sustainability, the ecological transition and the problems generated by climate change will put pressure on the transformation of the industry, thus generating new opportunities on the labor market;
 - Investments will positively affect increasing of general roles in sustainability (increase by 33% in the number of sustainability specialists, respectively by 34% in environmental protection specialists);
 - Significant increases in jobs will also be felt in education field (10% / approx. three million) and agriculture (15-30% / approx. four million).
- *The future of jobs (2023)* report also emphasizes that:
 - Because skills shortages and a lack of talent availability will be the main barriers to transformation, training and reskilling programs will become essential for some industries;
 - The gap between workers' skills and the future needs of the business environment is currently forcing companies and governments to provide opportunities for learning and reskilling;
 - Complexity of problem solving in the workplace make that cognitive skills being now essential skills for solving problems (analytical thinking and creative thinking are now indispensable skills).
- It should also be said that in 2023 Denmark (1), Ireland (2) and Switzerland (3) were in the top of the most competitive European economies, according to a report produced by IMD - World Competitiveness Center;

- In 2023 Romania Ranks 48th, the best ranking in the last 4 years;
- Ranking takes into account four factors:
 - **Economic performance** – Romania ranks 51th (at the EU level, Greece occupies the last place - 58, followed by Estonia - 54);
 - **Government efficiency** – Romania ranks 46th (at EU level: Italy – 56th, Bulgaria – 55th, Poland – 54th, Greece – 53rd, Spain – 51st, Croatia – 49th, Slovakia – 48th, France – 47th);
 - **The efficiency of the business environment** - Romania ranks 49th (Bulgaria – 62 th, Hungary – 58 th, Latvia – 57 th, Croatia – 56 th, Slovakia – 52 th, Spain – 51 th);
 - **Infrastructure** – Romania ranks 50th (within EU Romania are exceeded only by Bulgaria, ranks 54th).

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CYBERSECURITY AND MACROECONOMIC VULNERABILITIES

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Abstract: *Managing the risks of national information systems is vital in order to ensure an indestructible information security. The risks associated with any type of cyberattack depend on three elements: the threats – who initiates the attack, the vulnerabilities – the sensitive areas on which the attack is focused and the impact – the effects of the attack. The management by the security departments of the risks generated by cyberattacks involves eliminating the threat source, approaching the vulnerabilities by strengthening ICT assets, reducing the impact by mitigating the damage and restoring the functions. The optimal level of risk mitigation depends on the sectors in which a public institution operates.*

Keywords: *security, information, risk, vulnerability, protection*

The actual context definitely imposes the use of the online environment in our daily activities, both at work and at home, as well as the transfer of information between all kinds of entities, from public institutions, organizations and companies to end users. The virtual environment is evolving, which creates new opportunities for the development of the informational society, as well as risks with regards to its functioning.

Information, like every other vital resource of an organization, is an extremely important component for the Romanian public institutions and therefore, it requires an adequate protection. Information has become the target of increasingly numerous and diverse threats and vulnerabilities in both the public and the private environment. Information security systems protect the organizations against a diversified range of threats, in order to ensure the continuity of the activity, the veracity of information, the resilience to cyberattacks and the minimization of information theft risks threatening the institutions from an informational point of view.

In fact, what does the concept of information security represent? Due to the fact that it has a wide applicability and scope, it ensures the integrity, the safety and the availability of information. Of course, the permanent modernization and application of innovation in the IT field also exponentially increases the risk, while allowing at the same time the emergence of new risks, totally unknown to manufacturers up to that moment. Precisely for that reason, the public or the private users must be one step ahead and implement new control methods in a continuous and professional manner. It is extremely easy to give examples of risks in this sector: the emergence of the new capacity portable memories gives to those who want to perform illegal actions the chance to copy unauthorized data or steal it much easier, not to mention the Internet connection as well as networking, which substantially facilitate the data theft.

The technology which has become more and more complex over the years is nowadays present in almost every activity of the modern society, including in government services, whose tendency is total digitization. The latest exponential progress with regards to the processing power and the storage capacity led to the need for rapid, small sized, light, cheap and easier to use IT equipment. The IT industry and communication industry got closer and closer as market demands until they formed a combined, multidisciplinary sector called in the specialized terminology Information and Communication Technology.

The ICT equipment is very complex and highly interdependent, and the dysfunction of one its components can directly affect the functioning of the others. Information technology insiders have expressed their concern over the last few decades about protecting these systems against cyberattacks, which are actions performed by unauthorized individuals in order to illegally access IT systems for the purposes of business interruption, theft, destruction or other illegal actions.

The totality of actions to protect information systems and the data stored within them is called cybersecurity. This broad and insufficiently explained concept, cybersecurity, may be a useful term, but it cannot be identified through a precise definition. It usually refers to one or more of the following aspects:

- the activities and measures intended to protect both computer systems, computer networks, software applications, related hardware/software components and the data/information they store or transmit against attacks, interruptions of their functioning or other threats coming from the cyberspace;
- the situation in which you are protected against such illegal attacks;
- totality of efforts made to implement these activities aimed to mitigate the risk and to improve the quality of services.

In the case of public institutions, cybersecurity is related to the concept of information security. The designation can be explained through the activity of protecting all information and information systems of the state against unauthorized access, against unauthorized use, disclosure, interruption, modification or destruction. Sustained efforts are made to ensure the integrity, the confidentiality and the availability of information.

The governance in the field of cybersecurity shows numerous deficiencies in the public sector of Romania, which affects its ability to deal with cyberattacks and limit them, while undermining the possibility of a coherent approach at the overall level of the public system. That is precisely why the difficulty lies in strengthening cybersecurity governance which can be counteracted by ensuring a climate based on trust which is essential to the process of strengthening the overall cyber resilience. Improving the information exchange and the coordination between the public and the private sectors remains a challenge hard to overcome, which can minimize the effectiveness of the response to cybersecurity incidents.

The digital ensemble has become so complex that it is practically impossible to repel a cyberattack.

The solution to this challenge consists in rapidly detecting and responding to information security incidents. Unfortunately, cybersecurity has not yet been fully integrated into the current Romanian mechanisms of crisis response coordination which limits the national capacity to react to large-scale cross-border cyber incidents.

The protection of infrastructures and vital societal functions is essential. The hypothetical possibility of interfering with electoral mechanisms and intervening in the online and offline disinformation campaigns is a continuous challenge. The current interactions caused by the cyber threats that our country faces require an ongoing commitment and a constant compliance with the primary European values in the field. There is no single, standard, internationally accepted definition of the concept of cybersecurity. This concept integrates all warranties and measures adopted to protect the information systems and their users against the unauthorized access, against attacks and damage in order to preserve the data in its entirety and to protect it.

Cybersecurity encompasses preventing and detecting cyberattacks, responding to them and recovering after an incident. Incidents can be caused intentionally or unintentionally and cover a very wide range of situations, starting from accidental disclosure of information up to attacks on vital infrastructures, the theft of personal data and even interference with democratic processes. All

these incidents can reflect negatively on individuals, public institutions and communities in general.

As for the cybersecurity of hardware and software infrastructures of the Romanian Government, this is the state of normality of information in these systems, of the digital resources or of services offered by the public institutions in the cyberspace (Decision no. 271/2013). This state implies ensuring the following objectives:

- **confidentiality** – the property that information, services or resources of information systems are not available to unauthorized persons or processes;
- **integrity** – the property of preserving the accuracy of information, services or resources of information systems;
- **availability** – the property that information, services or resources of information systems are available at any moment to authorized persons or processes;
- **authenticity** – the property of ensuring the identification and authentication of persons, devices and services of information and communication systems;
- **non-repudiation** – the property that the data in the information systems cannot be repudiated (denied, disputed) subsequently.

Being a vast field, security has been divided into fields of division in order to make it easier to manage. The division allows professionals in the field a more precise approach with regards to training, research and labor division. At the level of the International Organization for Standardization (ISO) and of the International Electrotechnical Commission (IEC), which are the international standard-setting confederations in all existing fields, 12 sub-fields of network security have been defined as follows:

- Risk assessment which represents the first step in risk management and determines the quantitative and qualitative value of the risk in connection to a specific situation or a known threat;
- The security policy is the document setting the coercive measures and the behavior of the members of an entity and detailing the means of accessing the data, which data is accessible and to whom;
- Organizing the information security is the model of information security management developed by an organization;
- Asset management represents the inventory of information assets drawn up according to a classified scheme;
- Human resources security defines the security procedures regarding the employment, the posting and the departure of employees from the organization of which they will be, are or have been a part;

- The physical and environmental security describes the protection measures for the data centers within an organization;
- The communication and operations management describes the security measures for networks and information systems;
- Access control refers to restrictions placed on the direct access to the network, systems, applications and data;
- The acquisition, development and maintenance of information systems defines the application of security measures within the applications;
- The management of information security incidents deals with how the system anticipates and responds to security breaches;
- The management of business continuity describes the measures of protection, maintenance and recovery of an entity's vital processes;
- The conformity describes the process of ensuring compliance with information security policies, standards and rules.

All of these fields were created precisely to use as a basis for the development of efficient security standards and practices and to give confidence to activities carried out between organizations.

The cyber threats to public institutions can come from individuals or from other states that may have different interests such as: financial gains, the theft of sensitive or classified information, political and strategic reasons, discrediting, etc.

Thus, cybersecurity becomes a competition between attackers and defenders. The attackers constantly analyze the vulnerabilities of information systems, which can occur in various contexts, and the defenders have the obligation to reduce these vulnerabilities, especially the most important and challenging ones which are those acts committed by persons inside the system (insiders) as well as previously unknown vulnerabilities (zero-day vulnerability). However, there may also be known vulnerabilities, which can be fixed, but which cannot be implemented in most cases due to budgetary or operational constraints.

An undetected cyberattack on a public institution's information system can compromise the confidentiality, the integrity and the availability of data and information it manages. The consequences of such an attack on an institution can be the cyber theft or the cyber espionage, obtaining financial, personal or professional information, often without the knowledge of the victim, slowing down or preventing the access of legitimate users to an information system, taking control over an information system to be used in cyber attacks on other systems, destroying or interrupting industrial control systems that can lead to malfunctions of the equipment they control (generators, pumps, power plants). All these can generate major effects at the regional or state level.

Based on previous experiences, we can say that, in most cases, cyberattacks have a limited impact, while a successful attack on certain components of vital infrastructures of a public institution could have significant effects on national security, national economy and the safety of citizens. Reducing these risks at state level involves removing known threat sources as well as mitigating vulnerabilities and their impact.

Vulnerability is a weakness of a hardware or software system which allows unauthorized users to gain access to it (Mihai & Petrică, 2014). The vulnerabilities of information systems are usually found in the hardware infrastructure, in software solutions or the human component. The information systems are first of all vulnerable to classic attacks when a user manages to physically enter the premises of computer systems and steal confidential information. To prevent this from happening, public institutions must take measures to ensure the physical security of ICT equipment by placing it in secure areas, restricted to unauthorized persons. The security in such areas is done by restricting the access, which can take place via human security, the use of intercoms, access cards or biometric data scanning devices that authenticate users who have an entry permit.

Another kind of vulnerability of information systems is represented by the natural disasters (earthquakes, floods, fires) or by accidents (for example voltage drops or power surges), which can cause the physical destruction of computer equipment. That is why great care must be taken in placing the equipment in adequate, secure spaces in order to mitigate the risk of natural threats.

The most serious threats with regards to consequences are those allowing hackers the access to the most sensitive data and information of the information system. These attacks start by infecting computer systems with trojan viruses or computer worms that can penetrate the security of the information system and thus, an unauthorized user can connect to the system. These are considered extremely serious vulnerabilities because they allow the total access of unauthorized users to the operating system and to the database of the system, having the capacity to steal or even delete important or confidential government data.

A separate kind is represented by zero-day vulnerabilities, unknown to software developers and providers and which can be exploited by cybercriminals, without there being a known fix for the security breach, or the attack committed.

The causes for the emergence of vulnerabilities or security breaches in an information system can be multiple and here are some of them in what follows:

- programming errors of operating systems or of computer applications;

- improper configuration of operating systems or applications;
- the level of knowledge in the field of system of network administrators;
- lack of support from software developers in fixing possible application crashes.

Still, we must admit that one of the greatest vulnerabilities of an information system is the available human resource dealing with the configuration and the management of information systems. As a result of insufficient practical experience or of an incomplete documentation regarding certain configurations of the operating system or other installed applications, cybersecurity can be totally compromised.

Any information system has vulnerabilities. We cannot strongly state that there is a 100% safe system. Such vulnerabilities are used in many attacks targeting an information system directly, and we can give the example of malware attacks, or indirectly, in the case of the information system involved in a DDoS attack.

Cyberattacks have been taking a particularly large scale recently, some of them can be catalogued as global epidemics precisely because of the high spreading speed in the virtual environment. The threats specific to information systems have as common elements a very strong dynamic and a global character, traits which exponentially increase the degree of difficulty in their identification and, implicitly, their removal.

Cybersecurity is a vital component in the actual context of national security, it is highlighted by the multitude of development directions in the field. The modernism, the technological explosion and the automation of most activity areas of a society determine the field of cybersecurity to be a priority in the development of national defense strategies at state level.

At this point, Romania is in the midst of activities designed to strengthen the national cybersecurity, from a legislative, institutional and procedural point of view. Therefore, significant efforts are being made at the level of authorities in the field. According to the reports of these institutions, Romania is not only a country that generates cybersecurity incidents or playing a transitory role for external attackers, but it is also turning into a favourite target of cyberattacks such as APT, DDoS or ransomware.

The extent to which the the current legislative regulations become operational at the level of public institutions in Romania is unfortunately quite low. This fails to provide the necessary prerequisites for preventing and counteracting with maximum efficiency cyberattacks with a higher degree of complexity. These realities must make us aware of the fact that we have a major responsibility in strengthening the institutions which have attributions

in the field of cybersecurity. This must be a top priority, precisely in order to ensure the premises of a rapid reaction to cyber incidents.

The international cooperation has a decisive role in counteracting this phenomenon because cyberattacks go beyond state borders, reaching the level of globally interconnected systems. Cyber threats are constantly evolving and intensifying at an accelerated pace. A much closer cooperation in managing cross-border cybersecurity incidents is urgently required. The collaboration with transnational entities is absolutely necessary, be it government institutions, research centers or higher education institutions.

The adoption of a comprehensive legislation in the field of cybersecurity supporting the development of the national defense capacities is an actual, acute and necessary priority. Ensuring a safe cyberspace must be the responsibility of the competent authorities in the field. But we should not forget that the responsibility belongs not only to the state, through its institutions. Each of us is an integral part of the notion of state. Therefore, the responsibility must equally belong to the private sector and to the civil society. In order to develop the culture of cybersecurity, we believe that the most important mechanisms are education and research, the public-private partnerships as well as the international cooperation mechanisms.

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THE ROLE OF ACCOUNTING EXPERTISE IN THE ROMANIAN FREE MARKET ECONOMY

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Abstract: *The contemporary era is characterized by an unprecedented development of business due to the expansion of capital and information technology, which has generated structural changes in the business environment. These changes have had a direct impact on the way business is conducted. As a result, disputes are arising more and more frequently and, in order to resolve them fairly, the services of experts are needed.*

Keywords: *Accounting expertise, economy, free market, accounting expert, accounting methods*

Romania's move towards a real and competitive market economy has brought about fundamental changes in the structure of companies' capital and assets, changes which require a profound reconsideration of the very concept of management of economic units and of the way in which chartered accountants and/or certified accountants approach and carry out in practice the object of study of accounting, which is assets.

As essential features of the free market economy:

- the existence of a wide range of forms of ownership, with the private sector predominating;

- operation of enterprises strictly on the basis of free market mechanisms, efficiency, profitability and decision-making criteria;

- the exercise by the state of a role of free will, which simply sets the rules of the game by establishing economic policies, a role similar to that played by the state in the economies of advanced countries;

- Romania's wide openness to the outside world, finding its place in the global economy, which is rapidly taking shape.

In order for the market economy to function efficiently and in conditions of real and fair competition, a fair economic environment must be created for all partners in the social game (enterprises as independent and autonomous patrimonial entities). This can be achieved through the creation of a coherent legislative framework, without restrictions and constraints from the state, and through appropriate economic levers.

The ultimate goal for all participants in economic life, in a given economic environment each enterprise is free to spend, produce and save in accordance with its own development strategy, is to make as much profit as possible.

To do this, companies must organise their business on the basis of efficiency, profitability, management and organisational capacity, and must adapt to the increasingly aggressive and dynamic national and international economic environment. The transition to a market economy has involved a genuine managerial revolution, the selection and promotion of new generations of managers with genuine professional competence, prepared to act effectively in the conditions of a market economy and to contribute to the prompt settlement of disputes.

The profound changes in Romanian society have had a direct impact on the way business is conducted, as well as on the accounting profession. The profession of accounting profession is concerned with accounting doctrine and practice.

The concept of expertise is a thorough research, of a technical nature, carried out by an expert, a specialist of high standing, in a particular field.

Expertise is an attribute of science, and the expert was, is and will be a scientist.

According to the definition in the Explanatory Dictionary of the Romanian Language, expertise is a research activity, of a technical nature, carried out by a high-ranking specialist in a specific field, with the aim of establishing the material truth in a specific case, problem or dispute. The expert has acquired this quality by law, following an examination and is recognised by a professional body.

In using the expression “expert” the legislator referred to a certain category of persons who, by virtue of their studies, knowledge and, where provided for by law, certification obtained after an examination, are experts in a particular field of activity and who, by the findings and conclusions they formulate as a result of their appointment to a particular trial or criminal prosecution or investigation file, assist the bodies which ordered their appointment in the resolution of the case.

Using methods specific to the science of accounting and focusing on the rules of economic law, the chartered accountant provides the judicial body with conclusions based on records and documents on facts for which specialist knowledge is required.

An accounting expert is an investigative activity carried out by an accountant with the objective of establishing the truth in a given case or dispute, to clarify how certain facts or situations of an economic and financial nature are reflected in supporting documents and accounting records. Expertise, in general, is:

- the investigative activity carried out by a specialist, who has the status of expert, with the aim of establishing the truth in a given situation, matter or dispute;

- “a means of proving, establishing, confirming, evaluating, clarifying or proving, on the basis of specialised scientific research, the objective truth about a given fact, circumstance, problem, situation, cause or dispute”.

By using the expression “expert” the legislator referred to a certain category of persons who, by virtue of their studies, knowledge and, where the law so provides, certification obtained after an examination, are experts in a particular field of activity and who, by the findings and conclusions they formulate, following their appointment to a particular trial or criminal prosecution or investigation file, assist the bodies which ordered their appointment in the resolution of the case.

As a means of evidence, expertise is defined in many variations in form but essentially identical in content.

According to the literature, expertise is:

- “the operation performed by one or more experts for the purpose of ascertaining certain facts, controlling, examining, measuring and evaluating certain things”

- “the operation entrusted to persons, on the basis of their special knowledge, on facts which judges could not assess;

- ‘a means of investigation, by which either the obtaining of evidence or the accurate evaluation of existing evidence is achieved’;

- “an investigation consisting of various operations specific to each specialty”

- “a means of proof governed by the Code of Civil Procedure, to which the court has recourse when, in order to establish the objective truth, it is necessary to clarify certain factual circumstances, the resolution of which requires specialist knowledge in the field of science, technology, art or a trade which the judge does not possess”;

- “a means of proof ordered or requested by the court in civil or criminal matters, carried out by a specialist in the subject-matter of the dispute, who, by virtue of the knowledge and experience which he possesses, is required to clarify various aspects which are necessary to know in order to resolve a case”. Another definition of chartered accountancy is that chartered accountancy is a task of the accounting profession that can only be performed by persons who have acquired the status of chartered accountant under the law, being registered, with a valid licence to practice the profession, in the Register of chartered accountants, updated annually by CECCAR.

We consider the accounting expertise as a scientific research work because, in its own way, it is unique, each expertise having characteristics and documents that are not found in any other expertise.

The accounting expert’s report covers only the economic and financial side of the facts and circumstances being examined, the legal side being outside the competence of the accounting expert.

The addressees of judicial accounting expert opinions are the bodies entitled to order the expert opinion to be carried out - the bodies responsible for investigating criminal cases and the courts in civil and criminal cases, as well as the parties involved in the judicial proceedings, including third parties, whether natural or legal persons, to whom the expert opinions may be enforceable.

The activity of chartered accountancy is attributed only to chartered accountants, active members of the Romanian Body of Chartered Accountants and Certified Accountants. Accountants who wish to carry out forensic accounting expertise must pass the test to be enrolled in the Group of Forensic Experts, called GEJ.

The activity of chartered accountancy is organised by CECCAR, the professional body that manages this activity. In accordance with OG 65/1994 amended by Law no. 162/2017 on statutory audit of annual financial statements and annual consolidated financial statements and amending certain regulatory acts. Using methods specific to the science of accounting and focusing on the rules of economic law, the chartered accountant provides the judicial body with conclusions based on accounting records and financial accounting documents on facts for which specialist knowledge is required. There are some similarities and fundamental differences between expert and witness evidence. The fact that the legislator himself classifies both expert and witness evidence in the same procedural category of evidence shows that both the witness and the accounting expert are third parties in the process, with a common purpose: through the procedural activity they carry out, to contribute to the establishment of the truth by the courts and the prosecution or criminal investigation bodies.

Unlike a witness, who recounts past facts, an accountant draws his own conclusions, new to the case, based on financial and accounting documents and records. The witness, being a product of the circumstances of the case, cannot be replaced, as long as the chartered accountant is chosen from among specialists in the field of expertise.

The conclusion that emerges is that, in order for the accounting expert to meet the purpose for which it was ordered, it must show a high degree of contributory index to the resolution of the case in question. Being evidence equal to any other evidence, only the expert accountant's report cannot simply be accepted, its character as scientific evidence, useful to the case, being inferred only after a thorough analysis and critical assessment of it.

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LABOR MARKET AND THE COVID-19 PANDEMIC

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Abstract: *The spread of COVID-19 and the drastic blockages that followed led to the emergence of economies and labor markets around the world in a state of emergency. Governments have had to take a whole series of measures to protect jobs and businesses. In the short term, this means an extreme disruption of citizens and labor markets, as countries impose travel restrictions and blockages nationwide to slow the spread of the virus and prevent overwhelming health services. The coronavirus pandemic has raised the unemployment rate in all European Union countries to alarming levels, with Spain being one of the countries with the highest number of unemployed registered in the last year, according to the latest Eurostat statistics. On the other hand, people in two parts of the Czech Republic are among the lucky ones who have managed to keep their jobs. Labor market volatility is also very noticeable in Romania, where many small and medium-sized businesses have found themselves in a position to lay off staff or to adapt to new trends, by changing the object of activity by 360%. But the full effects of the crisis are still unknown and could last for many years.*

Keywords: *labor market, COVID-19 pandemic, employment, vulnerable groups*

JEL Classification: *E24, F66, J10, J21, J46*

1. Introduction

The loss of jobs due to the pandemic has destroyed “five years of progress”, a new UN report points out. Unfortunately, experts do not expect the situation to be remedied too soon. According to a report by the International Labor Organization (ILO), a specialized agency of the United Nations with general competence in labor and social security, by 2023, the global labor market will not return to pre-pandemic levels.

The report on employment and the social outlook estimates that around 220 million people worldwide have been unemployed since the beginning of the pandemic, with only a slight improvement expected by 2022.

The labor market has been severely affected by the pandemic and the recovery process will be slow. Specialists estimate that in 2022, in the records of the employment offices, there will be 205 million unemployed - a figure much higher than the one existing in 2019, of 187 million unemployed. Until at least 2023, the increase in employment will be insufficient to compensate for the losses suffered, the report states.

The massive loss of jobs has exacerbated global inequality, with women, young people and informal sector workers being the hardest hit. According to the IOM report, since 2019, another 108 million people have been living in poverty or even experiencing extreme poverty. The pandemic has canceled five years of progress in combating global poverty, the report said.

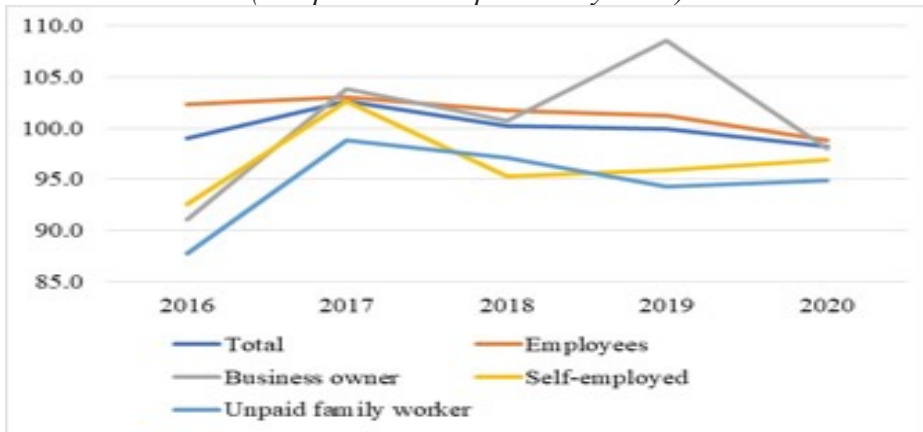
The UN Labor and Social Security Agency estimates that globally 30 million new jobs could have been created without the pandemic. Instead, many small and medium-sized companies have gone bankrupt or are facing difficulties that threaten their existence in the market.

2. Romanian labor market in pandemic

The COVID-19 pandemic has brought massive changes in the structure of the Romanian labor market. Although some sectors have suffered heavy losses in the last year and a half and given up some of their employees, other areas, such as deliveries or courier, have grown and attracted the redundant workforce.

Analyzing the evolution of the employed population by main categories (Figure 1), we find that the most affected category, in 2021, was that of Employers, followed by that of Employees, which led to a decrease in the total number of employed populations, compared to previous year.

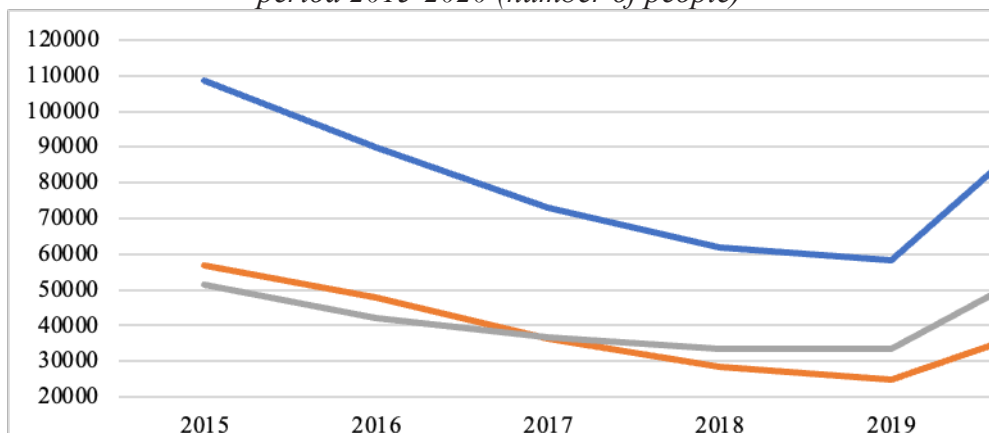
Figure 1 Evolution of the population employed in total and by categories (compared to the previous year%)



Source: Calculate authors based on TEMPO-online data <http://statistici.insse.ro:8077/tempo-online>

The most eloquent example that the labor market has been affected by the pandemic is the number of unemployed (Figure 2). It recorded massive increases in 2020 (from 58336 people registered in 2019 to 100740 people registered in 2020, ie almost a doubling of the number, given that by 2019 there were decreases every year, compared to previous). The category most affected by this increase were women (with an increase of 77.4%, compared to the category of men, where the increase was 65.9% - compared to 2019).

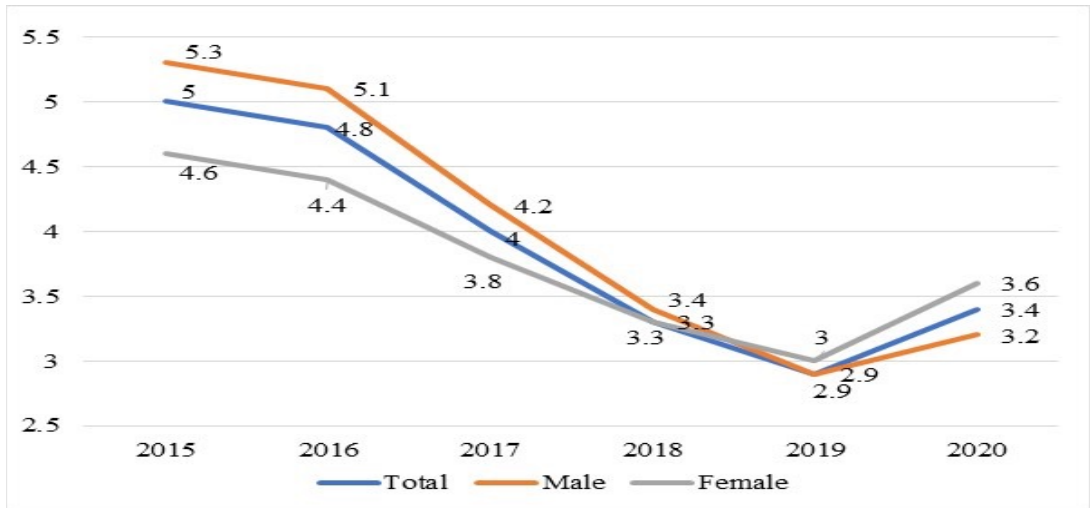
Figure 2 Evolution of the number of unemployed, by total and by sex in the period 2015-2020 (number of people)



Source: Data TEMPO-online, <http://statistici.insse.ro:8077/tempo-online>

The increase in the number of unemployed also resulted in an increase in the unemployment rate (Figure 3). It is also noted here that the unemployment rate among women is higher than among men, although before the pandemic the ratio was reversed.

Figure 3 Evolution of the unemployment rate (2015-2020 -%)



Source: Data TEMPO-online, <http://statistici.insse.ro:8077/tempo-online>

All these transformations registered on the labor market were due to the fact that there were companies that made redundancies because they restricted their activity, or there were companies that simply closed down.

3. Conclusions

A recent report by the World Economic Forum shows that the year 2020 has produced a major change from the perspective of the way activities are carried out, moved in most cases to the online environment.

The document notes that labor market predictions are difficult to make in the current context, in which companies of various sizes have reduced their staffing structures, adapting their business.

The main trend in the labor market in the next period will remain the technological adaptation, followed by automation. This second trend will lead to a major change in activities, jobs and skills that will be needed in the labor market by 2025.

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THE IMPACT OF AI ON INTERNAL AUDIT AND ACCOUNTING PRACTICES

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Abstract: *The technological evolution in the last decade has led to the extensive integration of Artificial Intelligence (AI) into various fields, including audit and accounting. This research addresses the profound transformation of audit and accounting methodologies through the integration of AI-based technologies. Focusing on the application of linear regression in financial data analysis, this study explores the efficiency and accuracy of AI in interpreting, analyzing, and predicting financial models. Using simulated data sets and implementing the model in Python, the results show a strong correlation between the level of AI implementation and audit efficiency. Our vision for the future suggests a deep collaboration between human capability and artificial intelligence, allowing for a more accurate and efficient audit. This transformation will require ongoing adaptation from professionals and industry regulations.*

Keywords: *Artificial Intelligence, Financial Audit, Linear Regression, Technology, Financial Analysis*

JEL Classification: *M41, C53, C88*

1. Introduction

1.1. Humanity and Artificial Intelligence: A Historical Perspective

AI as a New Tool: Understanding and Growing Alongside Technology.

Artificial Intelligence (AI) represents a technological frontier that combines advanced computational capacities with human cognitive abilities. Just as the steam engine in the 18th century propelled the Industrial Revolution, AI has the potential to transform society, economy, and culture in unparalleled ways.

Transitioning from mere automation to advanced learning and adaptability, AI acts as a tool that extends and amplifies human capacities. It goes beyond processing information at staggering speeds to understanding

complex contexts, recognizing patterns, and generating innovative solutions for societal challenges.

To capitalize on these capabilities, it is essential for society to comprehend and appropriately integrate AI technology. This means continually educating individuals, from students to professionals, to work alongside AI-based systems and fully exploit their potential. Just as it was vital to understand the mechanics and principles underlying the steam engine to use it efficiently, it is crucial to grasp the foundational concepts and ethics governing AI.

Integrating Artificial Intelligence across various fields, be it medicine, engineering, art, or finance, poses both challenges and opportunities. Just as the pre-industrial society evolved and adapted to the Industrial Revolution, the modern era faces the challenge of growing alongside AI and understanding how to navigate its complexity.

To benefit from this revolutionary technology, it's vital to adopt a collaborative and multidisciplinary approach. Understanding AI is not confined to technological expertise; it demands insights from areas such as ethics, sociology, and even philosophy. Such a holistic approach ensures that AI will be used responsibly, efficiently, and for everyone's benefit.

Comparing AI's Progress with Other Technological Revolutions in History.

Throughout history, humanity has witnessed technological revolutions that have reshaped the world in profound and often unforeseen ways. These revolutions have served as catalysts for significant changes in society, economy, and culture.

Firstly, consider the Agricultural Revolution, which took place about 10,000 years ago when people shifted from a hunter-gatherer lifestyle to farming. This was the moment when the first animals were domesticated and the initial crops were cultivated. The shift led to permanent settlements, the rise of the first civilizations, and the foundation of stratified societies.

Then, the Industrial Revolution of the 18th and 19th centuries marked the transition from manual production to mechanized production, facilitated by inventions like the steam engine and the mechanical loom. It resulted in urbanization, increased productivity, and the emergence of an industrial working class. The world became increasingly interconnected, and national economies grew exponentially.

The Information or Digital Revolution of the 20th century marked the shift from industrial technology to information-based technology, facilitated by the development of computers and the internet. It transformed the way information is created, stored, and transmitted, having a significant impact on business, communication, and daily life.

Now, we are at the onset of the Artificial Intelligence era. AI, with its ability to learn, analyze, and simulate human cognitive processes, promises to have an impact comparable, if not greater, than the previous revolutions. What distinguishes AI from other revolutions is its rapid pace of innovation and its applicability across almost all domains. However, as with the past revolutions, there are ethical, economic, and social challenges that need to be addressed.

Previous technological revolutions offer valuable lessons on how technology can be integrated and adapted to maximize benefits and minimize adverse effects. By studying and comparing AI with these revolutions, we can gain valuable insights into where society is heading and how we can navigate this new technological era responsibly and efficiently.

1.2. Artificial Intelligence: Definition, Progress, and Contemporary Applications

Artificial Intelligence Definition:

Artificial Intelligence (AI) refers to the simulation of human cognitive abilities in a machine, enabling it to perform tasks that traditionally require human intelligence. These tasks can include learning (the ability to acquire and apply knowledge and skills), reasoning (using rules to arrive at definitive conclusions), and self-correction. AI can also be defined by its purpose, as any device that perceives its environment and takes actions that maximize its chances of achieving a specific goal.

Traditionally, when we refer to AI, we think of systems based on algorithms that can perform tasks for which human intelligence was previously required. This can range from simple calculators to complex speech recognition systems or predictive analysis.

There are two main types of AI:

- **Narrow AI (or weak):** It is designed and trained for a specific task. Examples include virtual assistants like Siri or Alexa. It doesn't possess consciousness or emotions. It performs exactly what it has been programmed to do, relying on specified sets of instructions and algorithms.
- **General AI (or strong):** This would have all human cognitive abilities. This kind of AI would not only perform tasks autonomously, but it would also think, understand, and learn in an utterly autonomous way, similar to a human.

Over the years, many attempts have been made to define AI, but all revolve around the central idea that artificial intelligence is the endeavor to create machines that can think and act like humans. However, it's essential

to understand that, despite significant advances in the AI field, we have yet to reach the point where machines can manifest consciousness or emotion as humans do.

Progress in the AI field:

- The evolution of Artificial Intelligence (AI) has been marked by a series of remarkable achievements, but also by challenges and periods of stagnation. From its early beginnings in the 1950s, AI has gone through several phases, each contributing significantly and expanding this technology's possibilities.
- 1950s - Birth of the AI concept: Alan Turing, a British mathematician, introduced the "Turing Test" in 1950, proposing a method to evaluate a machine's capacity to manifest human intelligence. In 1956, at the Dartmouth Conference, the term "artificial intelligence" was first used, marking the beginning of formal research in this field.
- 1960s-1970s - AI as a field of study: During this period, many advances were made concerning solving basic problems in AI, such as knowledge representation and problem-solving methods. The first expert systems, which used encoded knowledge to make decisions in specific specialized areas, began to emerge.
- 1980s - AI Renaissance: After a period of stagnation known as "AI winter", the 1980s brought a revival of interest in AI due to progress in algorithms and the increasing computing power of computers. The first expert systems were developed and commercialized, generating substantial revenues.
- 1990s-2000s - Machines start to learn: The concept of "machine learning" emerged, where machines are programmed to learn from data, rather than being explicitly programmed. Algorithms like neural networks began to become popular.
- 2010s - The flourishing of deep learning: Deep learning, a subcategory of machine learning, became predominant due to the increase in computing power and the availability of big data. This led to significant advancements in image and speech recognition.
- 2020s and beyond: AI began to be integrated into many fields, from autonomous vehicles to medical diagnosis. We also begin to see the emergence of more advanced forms of AI, which can generate text, images, and music, sometimes feeling almost indistinguishable from human creations.

Even if the progress in the AI field has been impressive, there continue to be numerous technical and ethical challenges. Nonetheless, AI's potential to change many aspects of our society is undeniable, and ongoing research continues to open new possibilities and perspectives..

Contemporary Applications of AI:

Artificial Intelligence has permeated a wide range of industries and fields, revolutionizing the way tasks are performed and bringing about tangible benefits. Here are some of the most significant contemporary applications of AI:

- Virtual Assistants: Siri, Alexa, and Google Assistant are examples of virtual assistants that use speech recognition technology to carry out tasks, answer questions, and control connected devices.
- Image Recognition: Facebook and Google Photos use AI to identify and tag individuals in pictures. This technology is also pivotal in areas like medical diagnosis, where it can pinpoint abnormalities in radiological images.
- Autonomous Vehicles: Companies like Tesla, Waymo, and Uber employ AI technologies to develop cars that can drive on their own, relying on sensors and intricate algorithms to navigate safely.
- Automatic Translation: Applications like Google Translate employ deep neural networks to translate texts into different languages in real-time.
- Recommendation Systems: Platforms such as Netflix, Spotify, and Amazon utilize AI to analyze user preferences and suggest movies, songs, or products.
- Fraud Detection Systems: Banks and financial institutions deploy AI to scrutinize transactions and spot suspicious activities, thereby shielding clients from fraud attempts.
- Medical Assistance: AI is used to assist in disease diagnosis, predict patient outcomes, and even in robot-assisted surgery.
- Chatbots and Customer Services: Numerous businesses employ AI-based chatbots to provide real-time assistance to customers, thus automating the support process.
- Video Games: Artificial Intelligence is employed to craft smarter virtual adversaries and to model realistic behaviors in video games.
- Research and Development: AI aids in speeding up discoveries in fields such as biology, chemistry, and physics, allowing for intricate simulations and large-scale data analysis.

These are merely a few examples among the plethora of AI applications in today's world. As the technology continues to progress, we can anticipate even deeper integration of AI across various sectors, unveiling new and innovative possibilities.

2. Theoretical Background

2.1. History and Evolution of AI in Auditing and Accounting

A historical overview of the application of AI in the financial sector:

Although Artificial Intelligence might seem like a contemporary concept, it has deep roots dating back several decades. In the financial context, the application of AI began to gain traction with technical progress and the rise of available data in the financial domain.

In the 80s and 90s, the first implementations of AI in the financial sector took the form of rule-based systems. These were designed to assist banks and financial institutions in detecting suspicious or fraudulent transactions. The system would evaluate transactions based on a predetermined set of rules and generate alerts for transactions that violated them. However, these systems were limited in flexibility and could produce a high number of false alerts.

With the evolution of technology and the advent of neural networks in the 2000s, the financial sector began to recognize the potential of AI to process and analyze vast amounts of data with far greater accuracy. A notable example was the adoption of machine learning algorithms for stock market analysis, stock price prediction, and portfolio management.

In the context of auditing and accounting, the adoption of AI was initially slower due to the conservative nature of the domain. However, as the benefits of AI became increasingly evident, the industry began to incorporate technologies such as natural language processing (NLP) and predictive analytics. Thus, auditors were able to analyze transactions and financial reports in much more detail, identifying anomalies or hidden trends.

Another turning point was the introduction of robotic process automation (RPA) in accounting. These robots, powered by AI algorithms, allowed for the automation of many repetitive tasks, such as data entry, account reconciliation, or report generation.

In the last decade, with rapid technological advancements and the increased availability of data, the financial sector began to embrace AI in a much more robust way. Traditional systems were complemented by advanced data analytics solutions, customer service chatbots, and far more sophisticated fraud detection algorithms.

As the complexity of financial systems and associated data grows exponentially, human ability to manually analyze and interpret this data becomes increasingly limited. This is where the importance and need for artificial intelligence come into play.

- Increased volume and complexity of data: Modern organizations generate a vast amount of financial data. These data come from various sources - from bank transactions and invoices to customer data and social media interactions. Manual analysis of these data not only becomes time-consuming but also impossible in some cases. AI, with its real-time data processing capabilities, can manage and interpret these volumes efficiently, providing valuable insights.
- Anomaly and fraud detection: AI-based technologies, such as deep learning, are exceptionally efficient at detecting unusual patterns or suspicious activities. This is essential in auditing, where rapid identification of irregularities can prevent significant financial losses and protect a company's reputation.
- Automation and process efficiency: Many of the tasks associated with auditing and accounting are repetitive. From bank reconciliations to checking balances, AI can automate these tasks, freeing up professionals' time for value-added activities such as analysis and consultation.
- Customizing services for clients: In accounting and financial services, understanding and anticipating client needs is crucial. AI can analyze customer behavior and preferences to provide personalized services, thus improving customer satisfaction and retention.
- Continuous adaptation and learning: One of the most notable advantages of AI is its ability to continuously learn and adapt. As data is inputted and processed, AI-based systems improve and become more precise, ensuring that analyses and predictions remain relevant and up-to-date.
- Interpreting unstructured data: A large portion of financial and accounting data is not traditionally structured. From emails to notes and documents, AI can process and extract valuable information from these unstructured sources, providing a more comprehensive view of an organization's financial situation.

Faced with the challenges and opportunities of a digital era, the auditing and accounting industry cannot remain unchanged. Integrating AI into these fields is not just a competitive advantage but becomes a necessity to ensure accuracy, efficiency, and relevance in an ever-evolving financial landscape.

In conclusion, the journey of AI in the financial domain has been one of continuous evolution and adaptation, with the promise of a future where artificial intelligence will play a central role in defining and shaping the financial industry.

How AI has been applied in internal audit and accounting:

Over the past decade, the implementation of artificial intelligence (AI) in internal audit and accounting has revolutionized the way these fields operate, providing professionals with advanced tools to manage and analyze financial data. Here are some significant ways AI has been integrated:

- **Predictive Analysis:** AI allows auditors and accountants to perform predictive analysis, assessing trends and patterns in financial data. This can anticipate future financial outcomes based on historical data and can identify potential risks or opportunities.
- **Fraud Detection:** One of the most valuable applications of AI in audit is the ability to detect unusual or suspicious activities in financial data. By learning transactional patterns and financial behavior, AI can quickly identify discrepancies or anomalies that might indicate fraud.
- **Process Automation:** Many of the traditional tasks in accounting and audit, such as reconciliations, can now be automated with the help of AI, increasing efficiency and reducing human error.
- **Client Interaction:** Chatbots and virtual assistants can handle initial interactions with clients, addressing frequently asked questions and collecting basic information for later review by a professional.
- **Unstructured Data Analysis:** AI can quickly analyze unstructured data, such as client notes or correspondence, to extract relevant information. This is often essential in audit, where understanding context or intent can be as important as the raw numbers.
- **Decision-making Optimization:** With the ability to analyze vast volumes of data and to identify trends and patterns, AI can provide data-driven recommendations to support decision-making in audit and accounting.
- **Training and Education:** AI platforms can be used to train new employees, providing them with scenarios based on real data and real-time feedback, thus facilitating the learning curve.

The adoption of AI in internal audit and accounting has not only streamlined many of the existing processes but has also opened the door to new possibilities and ways of approaching financial issues. As technology continues to advance, the role of AI in these fields is expected to become even more predominant and redefine the way financial professionals operate.

2.2. Linear Regression and Its Importance in Financial Data Analysis

Defining linear regression:

Linear regression is a statistical technique used to model and analyze the relationships between two or more variables. In its simplest context, linear regression focuses on the relationship between an independent variable (or predictor) and a dependent variable, with the aim to estimate or predict the value of the dependent variable based on the value of the independent variable. The mathematical model of simple linear regression can be represented as follows:

$$Y = \beta_0 + \beta_1 X + \epsilon$$

Y represents the dependent variable (the one we want to predict);

X is the independent variable (predictor);

β_0 is the intercept or constant;

β_1 is the slope coefficient, indicating the change in Y for a unit change in X ;

ϵ represents the error or residuals, the difference between the observed value and the value predicted by the model.

In practice, linear regression can be extended to analyze relationships between multiple independent variables and a dependent variable, known as multiple linear regression.

Applied in financial data analysis, linear regression allows professionals to identify patterns, anticipate trends, and make predictions based on historical data. It can be used in various financial contexts, from estimating future revenue based on marketing expenses to analyzing the relationship between interest rates and asset prices.

Applications and significance in a financial context:

Linear regression, as a statistical tool, has found numerous applications in the financial field, as the financial market relies on data analysis and prediction to make informed decisions. Here are some notable applications and their significance:

- Evaluating asset returns: Trading assets, such as stocks, bonds, and derivatives, requires evaluating potential returns. Linear regression can be used to determine the relationship between risk factors and asset returns.
- Modeling and forecasting risks: A company can use linear regression to understand the relationship between various risk factors and financial

performance, allowing them to make more accurate forecasts and prepare for contingencies.

- Portfolio optimization: For investors, linear regression can be used to determine the optimal weights for various assets in a portfolio, aiming to maximize returns and minimize risk.
- Evaluating the relationship between expenses and revenues: Linear regression can be used to analyze how revenues vary based on various expenses, helping companies efficiently allocate resources.
- Estimating the cost of capital: The cost of capital is essential for evaluating any potential investments. Through linear regression, companies can identify the factors that most influence the cost of capital and take measures to optimize it.

The significance of using linear regression in finance is profound. A solid understanding of the relationships between various financial variables allows businesspeople and investors to make more informed decisions, manage risks effectively, and maximize profitability. With the increasing volume of available data and technological advancement, the ability to apply statistical methods, including linear regression, in a financial context becomes increasingly essential for success in the field.

3. Methodology

3.1. Presentation of Data and Implementation of the Linear Regression Model

Description of the data set used:

In this study, we chose to use a fictitious data set to illustrate how artificial intelligence can influence audit efficiency. This data set was designed to represent the level of AI implementation in internal audit and accounting processes (represented on the X-axis) and the efficiency of the audit measured in hours (represented on the Y-axis).

Code and Results::

```
import numpy as np
import statsmodels.api as sm
import matplotlib.pyplot as plt
# Simulated data
X = [1, 2, 3, 4, 5, 6, 7, 8, 9, 10]
Y = [50, 48, 45, 40, 37, 33, 30, 28, 25, 20]
# Adding a column of 1s for the intercept
X = sm.add_constant(X)
# Creating the model
```



```
model = sm.OLS(Y, X).fit()
# Printing the results
print(model.summary())
# Visualizing the data and the regression line
predictions = model.predict(X)
plt.scatter(X[:,1], Y, label='Data')
plt.plot(X[:,1], predictions, color='red', label='Regression
Line')
plt.xlabel('Level of AI Implementation')
plt.ylabel('Audit Efficiency (hours)')
plt.legend()
plt.show()
```

The regression model results indicate a negative relationship between the level of AI implementation and the number of hours required for auditing. This suggests that as the level of AI implementation increases, audit process efficiency improves, reducing the total number of hours needed. The model has an extremely high R^2 , suggesting that the variation in audit hours can largely be explained by the level of AI implementation.

While these results are based on fictitious data, they illustrate the immense potential of integrating artificial intelligence into the auditing and accounting domain.

Technical details about the model implementation in Python.

Python, with its vast range of scientific libraries, offers a robust toolkit for data analysis. For our linear regression analysis, we opted to use the statsmodels library, known for its ability to provide detailed statistical analysis results.

Importing the required libraries:

```
import numpy as np
import statsmodels.api as sm
import matplotlib.pyplot as plt
```

„numpy” is used for mathematical operations, statsmodels for regression analysis, and „matplotlib” for graphical visualization of the data and the regression line.

Initialization and Data Preparation:

Data is simulated as two lists, X (representing the level of AI implementation) and Y (representing audit efficiency measured in hours).

```
X = [1, 2, 3, 4, 5, 6, 7, 8, 9, 10]
Y = [50, 48, 45, 40, 37, 33, 30, 28, 25, 20]
```


Adding the intercept column:

The linear regression model requires adding an intercept column (a column of 1s) to our data.

```
X = sm.add_constant(X)
```

Creating and Fitting the Model:

Using the OLS (Ordinary Least Squares) method from statsmodels, we created and fit the model to our data.

```
model = sm.OLS(Y, X).fit()
```

Visualizing the Results:

After fitting the model, we generated a statistical summary to inspect the model details.

```
print(model.summary())
```

Graphing the Data and Regression Line:

Using matplotlib, we visualized the actual data alongside the regression line generated by the model.

```
plt.scatter(X[:,1], Y, label='Data')
plt.plot(X[:,1], predictions, color='red', label='Regression
Line')
plt.xlabel('Level of AI Implementation')
plt.ylabel('Audit Efficiency (hours)')
plt.legend()
plt.show()
```

Hence, Python implementation provided a clear and concise methodology to perform linear regression analysis while also offering the capability to visualize data and results in an intuitive manner.

4. Results

4.1. Visualizations and Interpretations of Linear Regression

Charts and visualizations of the results:

With the presentation of visual data and the interpretation of the coefficients of our linear regression model, we emphasize the importance and need for the implementation of AI in the field of financial auditing.

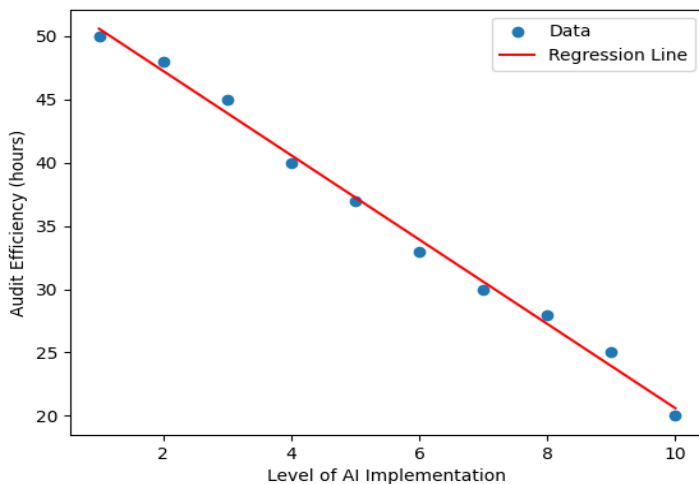


Fig. 1

Looking at the chart and the provided coefficients, a clear message stands out: artificial intelligence has the potential to revolutionize the way financial auditing is conducted. This is not just a matter of efficiency, though time reduction is crucial, but also a matter of accuracy and reliability. As AI technology continues to evolve, its ability to interpret and analyze financial data in ways humans simply cannot match becomes apparent.

Although we used a simple linear regression equation, the implications are profound. The R^2 value tells us that almost all the variation in the data can be explained by our model. This is a strong indicator of AI's potential to bring real value in the field of auditing.

Of course, for AI to operate at its fullest capacity in an auditing context, it needs to be provided with data in a format it can interpret. Thus, there is an increasing need to digitize financial records. Scanned documents can be turned into text through Optical Character Recognition (OCR) technology. This converts information from scanned images or photos into text that can be processed by algorithms. However, to maximize accuracy and efficiency, documents should be provided in native digital format whenever possible.

Additionally, to correctly interpret the information, AI algorithms might require training datasets to teach them to recognize and interpret patterns in financial data. This means that not just the quantity, but also the quality of the data provided to AI is essential.

Linear regression, although it might seem simple, gives us a deep insight into the potential of artificial intelligence in the field of auditing. With

the right approach and proper data provision, AI can not only make auditing more efficient but also enhance its quality and accuracy, thus adding value throughout the process.

Interpreting the coefficients and their significance.

By examining the results of linear regression, we can see that the coefficients provide essential information about the relationship between our data. Specifically, these coefficients illustrate how auditing efficiency (the dependent variable, Y) varies with changes in the level of AI implementation (the independent variable, X).

Intercept Coefficient (const): Its value, standing at 53.9333, represents the efficiency of auditing when the AI implementation level is zero. This can be seen as a starting point or the basic efficiency of auditing in the absence of any AI influence. Put simply, without AI, the estimated auditing efficiency would be 53.9333 hours (or another appropriate unit of measure).

Coefficient for AI Implementation Level (x1): This coefficient, valued at -3.3333, indicates the change in auditing efficiency for each unit increase in the level of AI implementation. Specifically, for every unit added to the AI implementation level, auditing efficiency decreases by 3.3333 hours. This suggests that the introduction and increased use of AI in the auditing process significantly improves efficiency, reducing the time required to complete an audit.

Both coefficients are statistically significant, as indicated by the P values ($P < 0.05$). This means there is a very low probability that these relationships are due to chance.

The R-squared and Adjusted R-squared values, which are 0.994 and 0.993 respectively, tell us that our model explains a very large proportion (about 99%) of the variation in auditing efficiency. This is an indication of the model's excellent fit and the relevance of implementing AI in the auditing context.

The interpretation of the coefficients underscores the fact that artificial intelligence has a significant and positive impact on auditing efficiency. As AI implementation increases, the time needed to conduct an audit decreases, which can bring substantial benefits to organizations and stakeholders.

The interpretation of the coefficients and their significance undeniably highlights the advantages of using AI in auditing. However, it is essential to understand that the efficiency of an AI system, especially in the realm of auditing and accounting, largely depends on the quality and processing of the data fed into the system. In conclusion, while artificial intelligence promises a revolution in how auditing is conducted, its success largely hinges on

organizations' ability to process and provide quality data. Combining human expertise with AI's processing and analytical power represents the future of financial auditing and accounting. The blend of these two elements will not only enhance auditing efficiency and accuracy but also elevate the level of trust and transparency in financial reporting.

5. Discussion

5.1. Impact and Implications of AI in Auditing and Accounting

Analysis of advantages and limitations:

Advantages:

- **Increased Efficiency:** By automating repetitive and time-consuming tasks, AI allows auditors to focus on more complex and nuanced aspects of auditing, such as risk identification or interpreting anomalies.
- **Large-scale data analysis:** AI can process massive volumes of data in a short time, enabling continuous auditing and real-time monitoring of transactions and accounts.
- **Fraud detection and prevention:** Advanced AI systems can identify patterns and anomalies that may suggest fraudulent activities, providing enhanced protection against financial risks.
- **Data-driven decisions:** With the help of AI, auditors can make informed decisions based on precise analyses and factual data, thereby reducing the margin of error and subjectivity.
- **Adaptability:** AI technology continually improves through machine learning, adapting to new patterns and requirements in the auditing and accounting field.

Limitations:

- **Dependence on data quality:** As discussed earlier, AI's efficiency is closely tied to the quality and integrity of the input data. Erroneous or incomplete data can lead to incorrect results.
- **High initial costs:** Implementing and training advanced AI systems may require significant initial investments, both in terms of time and financial resources.
- **Complexity of understanding results:** While AI can provide detailed analyses, correctly interpreting the results remains a challenge, especially for those not familiar with the technology.
- **Risk of over-reliance:** There's a genuine danger that firms may become too dependent on AI, thus neglecting human expertise and intuition, which remain crucial in auditing and accounting.
- **Ethical and confidentiality challenges:** With the increased use of

AI, concerns about data confidentiality and ethics in processing and storing information arise.

It's evident that AI has the potential to reshape the world of auditing and accounting in significant ways. However, as with any emerging technology, it is essential to approach it with caution, fully understanding its potential benefits and its limitations. Balancing technological expertise with human acumen remains the key to efficient and accurate auditing..

How the results can be applied in practice.

Given the results obtained from the linear regression model and the general analysis of the impact of AI in auditing and accounting, we have a clear picture of how these findings can be implemented in practice.

- **Optimizing the audit process:** The results suggest an inverse relationship between the level of AI implementation and the number of hours required to conduct an audit. In practice, this means that the more an auditing firm adopts AI, the more time it will save. This saved time can be reallocated to conduct more detailed audits, for professional training, or to expand the client portfolio.
- **Customized audit tools:** The data highlights the importance of developing and customizing AI-based tools to meet the specific needs of each firm. Each company has unique characteristics, and as a result, standard tools might not always provide the best outcomes. By developing tailored solutions, auditors can ensure maximum efficiency of their processes.
- **Implementing data verification procedures:** Given that the effectiveness of AI is dependent on the quality of the input data, firms should implement strict data verification and cleansing procedures before they are processed by algorithms.
- **Expanding fraud detection capabilities:** AI offers the opportunity to detect anomalies or suspicious patterns in large data sets. Practical implementation of this capability could lead to quicker and more efficient identification of potential fraud or irregularities.
- **Digitizing documents:** The results suggest the need to have data in a format that can be easily interpreted by AI. This requires digitizing documents, including using OCR (Optical Character Recognition) technologies to convert information from physical documents into digital data that can be analyzed.

In summary, the results provide a clear direction for auditing and accounting firms on how to optimize and adapt their processes to fully benefit from the potential offered by Artificial Intelligence. The practical

implementation of these findings will require a strategic approach, investments in technology and training, and a clear vision of long-term goals.

6. Conclusion

6.1. Reflection on AI Integration and Future Potential

Summary of conclusions:

In recent years, Artificial Intelligence has proven to be a transformative force in many areas, with auditing and accounting being no exception. The analysis carried out in this study underscores the significance and efficiency of integrating AI into traditional auditing and accounting processes.

The conclusions drawn from the analysis indicate that AI not only streamlines the auditing process by saving time but also adds a level of accuracy and detail that would otherwise have been challenging to achieve using traditional methods. AI-based tools, when correctly implemented and tailored to a firm's specific needs, have the potential to revolutionize the way audits are conducted, bringing added value both for auditing firms and their clients.

The digitization and processing of information in an AI-friendly format are paramount. This not only facilitates faster and more efficient analysis but also ensures that the results obtained are of the highest quality. As technology advances, AI tools are expected to become even more sophisticated, offering increased opportunities for anomaly detection and risk identification.

Looking forward, as the adoption of AI in auditing and accounting becomes more widespread, there will be an ongoing need for professional training and adaptation. This will ensure that professionals in the field remain relevant and are equipped with the necessary skills to navigate this evolving landscape.

In conclusion, the integration of AI into auditing and accounting isn't just a competitive advantage but becomes a necessity. The strategic and proactive approach to this integration will determine the success and efficiency of firms in the digital age. With its vast potential and growing capabilities, AI promises to bring a renaissance to the field of auditing and accounting, leading to new horizons of efficiency and innovation.

Vision for the future of AI integration in auditing and accounting:

As technology evolves, the future of auditing and accounting seems to be closely tied to the integration and extended use of Artificial Intelligence. AI has the ability to radically transform these fields, bringing about a series of improvements but also new challenges. Here are some insights into the direction we are heading:

- **Advanced Automation:** Traditional time-consuming auditing routines and accounting tasks like reconciliations and transaction analysis will be largely automated. This will allow auditors and accountants to devote more time to strategic analysis, data interpretation, and client consultation.
- **Fraud Detection:** With its advanced processing and analytical capabilities, AI will be able to detect anomalies and suspicious patterns with much greater accuracy than current methods. This will lower the risk of fraud and ensure a higher level of compliance.
- **Financial Forecasting:** AI integration will enable the creation of increasingly accurate financial models that can anticipate economic trends and market shifts, thus giving companies a competitive edge.
- **Intuitive and Interactive Interface:** As AI technology becomes more advanced, the interface with which auditors and accountants interact will become more intuitive. This might include chatbots for real-time consultation and assistance, as well as interactive dashboards for analysis and reporting.
- **Continuous Training:** As AI becomes a central component of auditing and accounting, the need for ongoing professional training will rise. Professionals will need to update their skills to remain relevant and efficient in this digital age.
- **Ethical Challenges and Regulations:** With the increased use of AI, new challenges related to privacy, ethics, and compliance will arise. Regulations will adapt to address these concerns, ensuring that AI is used responsibly and in the public's interest.

AI is anticipated to become an indispensable partner in auditing and accounting. However, the essence of the profession will remain unchanged: trust, integrity, and human expertise. Artificial Intelligence will provide the tools and capacity to optimize and innovate, but the trust relationship between auditor or accountant and client will remain the backbone of the profession.

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THE INFLUENCE OF THE COVID-19 PANDEMIC ON THE ROMANIAN POPULATION MIGRATION

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Abstract: *The pandemic and its consequences have affected the lives of people all over the world. But migrants were much more affected than any other population groups. The pandemic has, in the first phase, drastically reduced migration in all OECD countries, a phenomenon noted by the Organization for Economic Cooperation and Development, although migrants would have managed to ensure the functioning of some sectors strongly affected by the pandemic, such as the health, commercial and logistic, even during the restrictions period. In the midst of the pandemic, governments took exceptional measures, which limited the mobility of people and in this case, the mobility of migrants. The OECD believes that migrants have been particularly affected by the coronavirus pandemic, and as far as migration is concerned, it has been considerably reduced, an unfavorable phenomenon for both parties: both for the countries providing migration and for those receiving migration. Many of the migrants work in gastronomy, in hotels, in tourism - so exactly in the industries that were most affected by the pandemic. In the so-called HORECA sector in the EU, about a quarter of the employees come from third countries, twice more than in the rest of the economic sectors. The work contracts in the field are often very short-term. As such, the migrants were the first to be sent into unemployment. This paper aims to present an analysis of the impact of the COVID-19 pandemic on international migration from Romania starting from the analysis of the phenomenon from the pre-pandemic period, then extending the analysis of this phenomenon for the period 2020-2021.*

Keywords: *population migration, emigration, immigration, COVID-19*

JEL Classification: *J21, J61, J64*

1. Introduction

In Romania, international migration is a phenomenon that has produced both favorable and unfavorable effects at all levels of society: individuals, households, local communities, but also at the national level. In the period that followed after 1989, the most important and visible effect of international migration was the decrease of the resident population and the aging of the population, by drawing in migration especially the young population, the people who are generally the most active from the point of view economic.

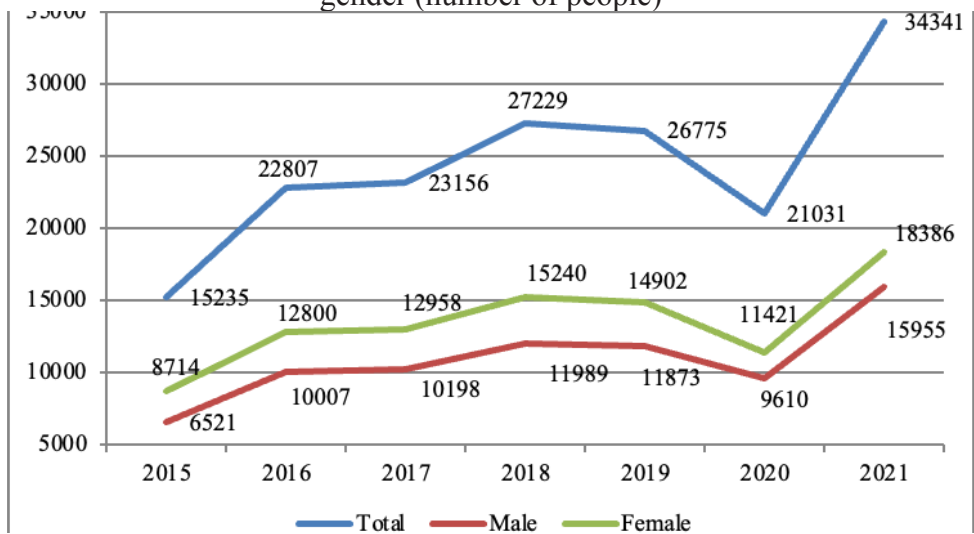
The impact of international migration, especially emigration, is felt especially on the labor market: decreasing the share of the active population, increasing the pressure on the one left to support the elderly, dependent population, but it also has extensive implications on the systems of social services, health and education ; also, migration produced changes in the evolution of demographic phenomena, especially on fertility, changes in the age and gender structure of the population and changes in family composition. Another unfavorable effect of international migration was the total or partial depopulation of some localities.

2. The evolution of the international migration in Romanian in the pre and pandemic period

Analyzing the evolution of the number of permanent emigrants from Romania (Figure 1), we find that at the level of 2020, it recorded much reduced values compared to previous years. This phenomenon was recorded both overall and by gender. Compared to 2019, this decrease was -21.5% overall, -19.1% male and -23.4% female.

The year 2021 registers a “strong” return of the phenomenon, it registering a worryingly high value of permanent migration: 34341 people chose to leave their country permanently, being the third highest value of permanent emigration recorded after 1990 (the higher values of permanent emigration were registered in 1990 – 96929 people and 1992 – 44160 people, according to the data published by the National Institute of Statistics, in the TEMPO Online Database <http://statistici.insse.ro:8077/tempo-online/#/pages/tables/insse-table>).

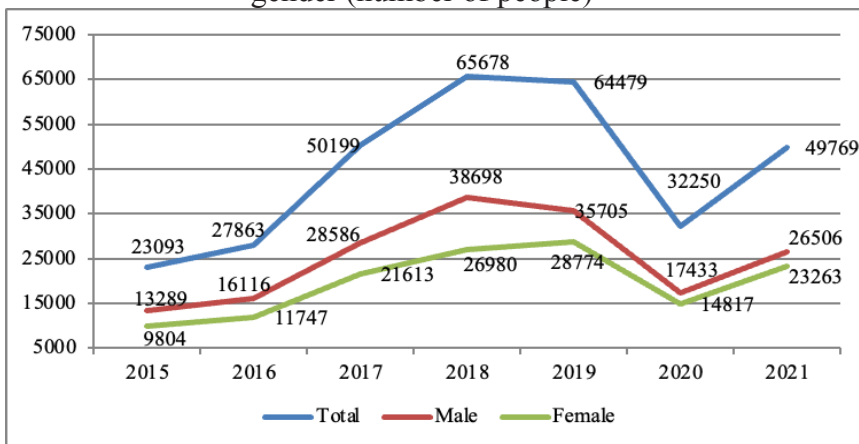
Figure 1 Evolution of the number of permanent emigrants in total and by gender (number of people)



Source: National Institute of Statistics, Tempo online database

Regarding the evolution of the number of immigrants (Figure 2), we note that by 2020, Romania had become a country where permanent immigrants had a remarkable increase, year after year. In 2017 we had an 80% increase compared to the previous year, after which 2020 brought a -50% decrease in the total number of immigrants, -51.2% for males and -48.5% for females. The year 2021 records an increase in definitive immigration, but at much lower values than those recorded in the pre-pandemic period.

Figure 2 Evolution of the number of permanent immigrants in total and by gender (number of people)



Source: National Institute of Statistics, Tempo online database

With regard to the labor market integration of foreigners with legal residence, as an important component of the integration process, with a significant economic impact, in 2017, an atypical situation was recorded, in the sense that the number of requests for issuance of employment permits for permanent and seconded workers exceeded the number of permits approved by the quota for the year 2017. Social integration represents the process of active participation of foreigners in the economic, social and cultural life of Romanian society. The policy regarding the social integration of foreigners has as its objective the possibility for foreigners who have their residence or domicile on the territory of Romania to accumulate a minimum amount of knowledge and skills, mainly 3 through Romanian language courses, cultural orientation and counseling programs that will enable them to access the other services and social policies under conditions similar to Romanian citizens.

3. Conclusions

At the international level, labor migration is a phenomenon with great potential, primarily for the development of developing states, reducing poverty and increasing investment in human capital. It also represents serious challenges for developed countries that compete to attract immigrants to cover their economic needs.

Speaking of negative aspects, we have in mind that the great mass of emigrants also includes a large number of specialists in the fields of IT, health, medicine, education and even in the field of innovation as well as others. Therefore, the labor force remaining in the country is slightly destabilized, in the sense that in priority areas and for our economy there is a lack of forces, cadres that can be used to carry out national projects.

In order to increase the positive effects and minimize the negative effects in the field of labor migration, the following aspects can be identified: stimulation of return migration and circular labor migration; creating favorable conditions for the businesses of returned migrants and the development of SMEs in the regions; adapting national educational policies to the needs of the labor market; more active and effective involvement of the diaspora in development policies.

One of the most visible effects, with a great impact on migration flows, is the evolution of the labor market. Both the massive migration for work and the aging process of the population are currently affecting the labor supply. The overwhelming share of those who migrate is in the age group of the active

population, followed by the population under 18 years old. In other words, we are witnessing the phenomenon of emigration of the entire family. After 2001, Romania became an increasingly attractive country for immigration, especially immigration for the purpose of work, with a marked increase in employment contracts of this category.

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**INTEGRATED REPORTING -
PART OF THE BUSINESS STRATEGY.
A THEORETICAL-METHODOLOGICAL APPROACH**

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***Abstract:** This paper presents the way integrated reporting is part of the business strategy. Currently, financial information represents the main source of data in drafting periodic reports, but non-financial information is necessary for establishing the value of the economic entity, ever-so relevant in planning long-term strategies. Publishing financial and non-financial information through integrated reporting is subject to a set of regulations which must be followed by the economic entities. Through this study, the research question, Is the integrated reporting part of the business strategy? may receive a positive answer. The answer to the research question is argued by the involvement in environmental, social and governance actions which have classified the entity's activity as being an interaction between interested parties within the internal or external environment and the economic entity itself. This fact contributes to the improvement of the image on the long-term and implicitly the business strategy on the one hand, leading the entity towards integrated reporting by publishing non-financial information on the other hand. Structuring the integrated reporting is based on the reporting model proposed by the 2014/95/EU Directive. According to the targeted economic entities, they have opted for a responsible activity growth strategy leading to a sustainable development on the long-term. The involvement in environmental, social and governance actions has classified the economic entity's activity as being a strategy of interaction between interested parties within the internal or external environment and*

the current economic organization. Thus, the content of the integrated report presents the strategy and the communication process with the main interested parties, a strategy of communication which details the necessary recommended process to follow, and an efficient strategy which concentrates on communication purposes, target demographics, communication plans and instruments used to provide information.

Keywords: *integrated report, business strategy, non-financial information*

JEL Classification: *M14, M41*

1. Introduction

The current economic context puts the traditional economic entity performance reporting system into difficulty, considering its exclusive basis on the specific of financial information. Reaching proposed goals and monitoring the economic entity's performance has highlighted, within the last years, the stakeholders' need of complex knowledge of every aspect regarding its activity. Considering this, the need to inform by emphasizing elements of non-financial nature has been highlighted, bringing an added value to the whole entity's reporting system. Combining information of financial nature with those of non-financial nature satisfies the increased expectations of the third parties and bears the name of integrated reporting (IIRC, 2023).

Parallel to the provided financial information, which is used no matter the specific nor the dimension of the economic entity, is the non-financial information which does not target the large public. For this reason, publishing financial and non-financial information under the form of integrated reporting is not mandatory for all economic entities. The category of individuals appreciating the non-financial information provided by the entity has a defined purpose, following well established objectives which project an overview on the economic entity's interactions. The parties interested in the information provided by the economic entity interpret the results in their own manner, using methods specific to economic analysis and appreciate in a subjective manner, attributing different values to financial or non-financial information. The current legislation imposes the requirement of providing non-financial information only by a certain category of economic entities, which meet the main condition of having a number of over 500 employees registered according to the last balance sheet. The economic entities which do not meet this condition are not covered by the European Directive but can voluntarily report information of non-financial nature. This kind of practice is appreciated and encouraged given the fact that through this procedure, the economic entity

has a high transparency of its activity, and moreover, it actively contributes to the process of sustainable development. In other words, through the decision of voluntarily reporting non-financial information, best practices bring a plus in the image of the economic entity and support its activity, promoting sustainable development (2014/95/EU Directive).

The continuous improvement of the regulations regarding integrated reports assumes continuous and permanent improvement of the way non-financial information contributes to exposing the business model of the economic entity. Establishing the way an economic entity chooses the integrated reporting represents a subject of interest in the context of its development (IIRC, 2019). Moreover, integrated reporting represents a useful approach for every interested party. The considerations regarding the integrated reporting and the impact it has on the business strategy must be reflected within the requirements and the particularities of the economic entity's performance (ACCA, 2023).

The research purpose represents the knowledge of the manner with which the integrated reporting represents a part of the business strategy in which the economic entity tends towards achieving the performances imposed on an international plan. For accomplishing the proposed purpose, one refers to the professionalism of the economic entities' managers to reflect, within the drafted reports, the events with significant impact on the sustainable development's exigencies, corroborated with the expectations and the needs of the third parties.

The research motivation is resulted from the desire to research the manner in which the economic entities use the integrated reporting to have a competitive edge. Respecting the same qualitative attributes regarding the drafted reports can represent an indispensable requirement within the targeted entities. The qualitative aspect of the reports drafted by Romanian entities refers to meeting the EU imposed standards and the used integrated reporting practices, to identify the influential internal and external involvements. Therefore, through this research one wishes to find the answer to the question: *Is the integrated reporting part of the business strategy?*

2. Literature review

The economic legislation brings a major contribution regarding the regulations favouring diverse possibilities of improving the traditional reporting model and offering new directions towards integrated reporting. The international legislative initiatives have created a reference conceptual framework for the integrated reporting which should be applicable at European level (2014/95/EU

Directive). This reporting manner has objectives and particularities referring to the traditional reporting method (Cosmulese, et. al., 2019).

Within the traditional reporting system there are authors considering that the financial information represents the ratio of the results obtained by the entity to the methods used (Dima, Popa, Farcane, 2015). Other authors appreciate the importance of the entity's non-financial information which they consider to be responsible of creating value for the clients, suppliers, community, and the environment (Bratu, 2017).

Regarding integrated reporting, García-Sánchez, Rodríguez-Ariza, Frías-Aceituno (2013) consider that it represents an influence factor of the entity's market value. The research that has been drafted over time regarding the topic of integrated reporting did not fully approach the subject due to the subject being in an early stage nationally and at European level. Until recently, the subject of integrated reporting did not have a well-established basis due to the lack of mandatory regulations within the European space headed towards this direction. That being said, there are a number of entities which with time considered, other than the economic factors, the social, environmental and personnel aspects which are noticed in the effort of drafting integrated reports (2014/95/EU Directive).

Multiple economic entities publish integrated reports voluntarily, and these aspects are highlighted in a favourable manner being a practice surrounded by theorists and researchers (Shkromyda, et. al., 2023). Dragu and Tiron-Tudor (2013) transmit through specialty literature the existence of a positive relation between the commendable behaviour of the social responsibilities' practices and the effective activity of the economic entity presented through integrated reporting.

Based on the drafted studies and their results, the economic entities which consider, within their activity, aspects of environmental, social, economic and personnel nature, have a higher value of the business because due to the activity's transparency their performance can be better appreciated, where preferential information addressed to the requirements of the large public is provided (Falkenberg, Schneeberger, Pöchtrager, 2023). The research made up until now supports the adoption of integrated reporting and considers that it is a viable method of accountability of the internal as well as external factors of the economic entity (Frías-Aceituno, Rodríguez-Ariza, García-Sánchez, 2013), (Castilla-Polo and Guerrero-Baena, 2023). The value of the provided information and its structure defines the manner in which the subject of integrated reporting is treated by the economic entity (Oprișor, 2015).

3. Research methodology

The paper at hand represents qualitative research made as a follow-up to the analysis of theoretical-methodological approaches regarding integrated reporting as a part of the business strategy. The reason for choosing this research method is due to the elements which can be presented only through qualitative research. The information sources this paper was based on are represented by the current legislation and mainly scientific articles published in this sense. Referring to induction and deduction this paper is headed towards an exhaustive analysis of the integrated reporting seen as a part of the business strategy. By appealing to the paper's content and its contribution, the text can be considered a documentation-type paper. Drafting this article included planning, data collection, data analysis and finally paper drafting.

4. Integrated reporting – an essential element in appreciating the economic entities' performance

Relative to the international accounting framework, respectively IFRS and the International Accounting Standards Board (IASB) the performance results from the income, expenses, and the financial results the economic entity has obtained (Bratu, 2017). In this sense, information regarding the financial performance is comprised in the situations with general purpose drafted by the entity and it addresses a large user base. In this context one problem may appear because the general-purpose situations drafted by the entity may not be enough to reflect the entity's value, but they may satisfy the public's requirements (Dima, Popa, Farcane, 2015).

A financial report is a summary of an entity's financial performance which offers information regarding the state of financial health, helping certain investors and interested parties take investment decisions. In the economic entity's dimension, the main instruments of financial reporting are the balance sheet, the profit and loss account, informative data, the cash flow statement, the statements of changes in equity, explicative notes to the annual financial situations and the administrator's report. There are multiple interested parties, including commercial creditors, bondholders, investors, employees, and management. Each group has its own interest in tracking the activity of an economic entity. The managers find out about the financial performances from the data published by the entity within forms or in known situations under the name of annual report. The purpose of the report is to offer interested parties

financially correct and reliable information reflecting an overview of the financial performance of the entity.

The non-financial reporting is represented by the *non-financial declaration*. This is composed of a series of elements such as the non-financial declaration: the performance, position and impact of the economic entity's activity, environmental, social and personnel aspects, respect for human rights, fighting corruption and bribing, describing the business model of the economic entity, describing the policies, procedures and measures adopted by the entity, presenting results obtained as a follow-up on taken measures, main risks regarding the economic entity's activity and the management mode of these risks, and last but not least key indicators of non-financial performance relevant for the economic entity's activity.

All these aspects are illustrated within figure 1.



Figure 1. Elements of the nonfinancial declaration

Source:***[online] *What is integrated reporting?* Available at: <https://blog.amco.one/en/what-is-integrated-reporting-and-how-it-explains-value-creation>

The non-financial reporting refers to integrity, more exactly the management method of ethical principles within the entity. There is a close connection regarding the correlation between reporting and integrity, because the assumed aspects within non-financial reports call for information correctness. The 2014/95/EU Directive imposes the drafting of a report in consolidated form at the level of a mother-entity which has more subsidiaries. At EU's level, one proposes the idea of introducing the requirement of drafting nation-wide non-

financial reports or member country-wide ones where the entity is active. This initiative represents the answer of the groups of European interests favourable to non-financial reporting, but also the current trending in the domain of non-financial reporting. The big entities which have subsidiaries in multiple countries draft separate sections intended for each state where they are active in or draft individual nation-wide reports. No matter the outcome of the presented proposal, it is imposed that the big economic entities mobilise the capacity of the subsidiaries towards unitary reporting for the mother-entity.

The aspect regarding the pylons of sustainable development is a strong argument in defining the integrated reporting due to the fact that the care towards the environment, social, economic and personnel represents a valuable information, strongly related to the strategic perspectives that will characterize its future activity. Additionally, one can bring into discussion the aspects of moral order towards which the entity's management leads the activity, respectively of acknowledging the impact the entity has within the society. Such practice displays, on the short, medium, and long terms, real benefits and maybe even a competitive edge by intensely promoting cases of social responsibility and not just the interest for the financial aspects as it has been proven.

How one manages the integrated reporting influences policies and the management system of risks and highlights the business model. The real-time presentation and reflection of the defining elements of the integrated reporting can be distorted through human errors or through treating the subject inappropriately, affecting the perception of the investors regarding the anticipated performances. Moreover, supplying elements of integrated reporting has a significant impact on the value of the economic entity's market value.

Thus, the investors, creditors, suppliers, clients, local community, authorities and third parties have a predictable behaviour in appreciating the efforts the economic entity takes but, on the other hand, they put into unfavourable light the economic entities which delay or omit the communication of integrated reports.

The integrated reporting represents a complex reporting process composed on one hand of the financial reporting which has as basis legislative regulations under which the economic entity lies and the International Financial Reporting Standards (IFRS), as well as the non-financial reporting also named sustainable reporting which has as basis the Global Reporting Initiative (GRI) and the AccountAbility 1000 (AA100). The integrated reporting system can be represented as seen in figure 2.

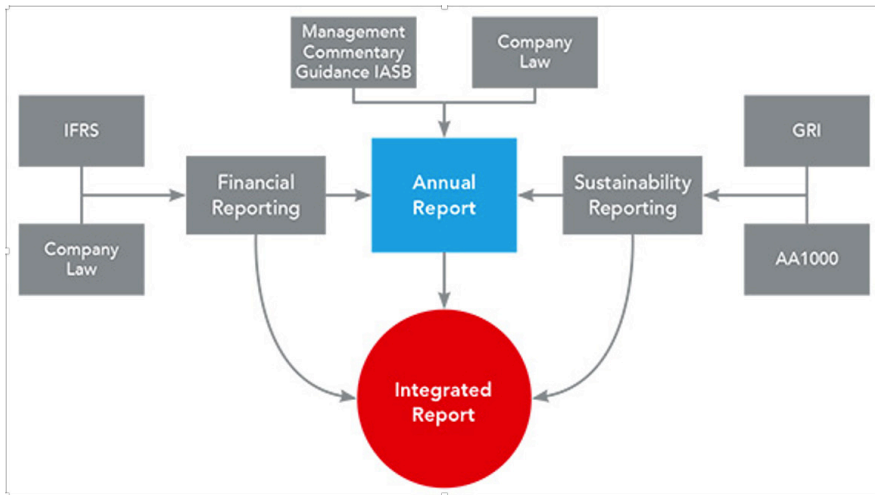


Figure 2. Content of the integrated report

Source: ACCA, (2023). How to respond to assurance needs on non-financial information. [online] Available at: <https://www.accaglobal.com/gb/en/student/getting-started.html>

The existing standards regarding integrated reporting suppose the existence of a favourable economic environment, in concordance with the progress of sustainable development. Connecting the integrated reporting to the entities' performance, as well as measuring and evaluating the registered progress with time during its activity, represents the ideal to be accomplished for all economic entities. The economic entity must focus on adopting the key indicators used within the integrated reporting through which one tracks the relevance and performance of the results. Therefore, a complete and interconnected process between financial information and non-financial information within the integrated reporting is promoted for enhancing the relevance of evaluating the performance of the economic entity.

5. Conclusions

The paper "*Integrated reporting- part of the business strategy. A theoretical-methodological approach*", refers, through a theoretical-methodological manner, to the business strategy of an economic entity the integrated reporting is part of, being an indispensable component in measuring performance.

With the help of the drafted study, one must determine whether the research question, *Is the integrated reporting part of the business strategy?* can receive a positive answer. In motivating the answer one can start from drafting

integrated reports which are either drafted in a mandatory fashion, or a voluntary one offering the third parties much more generous information than in the case of the traditional financial reporting. Therefore, by supplying mainly non-financial information materialized through direct implications in social, environmental and personnel implications, the recognition, visibility, and transparency of the entities grows, which can be a business strategy constituting a competitive edge as compared to other entities active on the competitive market.

Drafting integrated reports represents a defining element of the economic entity's image, governed by the credibility and the precision of the non-financial information made available to the user. Therefore, the integrated reporting offers the interested parties the possibility of outlining an opinion regarding the followed aspects of interest. A possible justification regarding the non-drafting of integrated reports, and implicitly not presenting integrating reports, can be represented by the lack of obligation from a legislative point of view or the low interest regarding this subject, coming from the economic entity as well as the interested parties.

Currently, the investors want to know as much information as possible about the performance and the way the economic entity creates value in time on short, medium, and long term. As a follow-up to the ever-so complex phenomena, to measure the activity, one imposes an in-depth analysis of the financial and non-financial indicators from the level of the entity found under the form of the integrated reporting.

Through integrated reporting, one wants to make an interconnection between indicators, for the relations between them not to be omitted or neglected, and for the made analysis to have expected results. The environmental, social and personnel events from the entity's point of view are associated to better performance, predicting future higher levels of sustainable development.

The economic entities' objectives regarding the drafting of integrated reports and the offering of as much non-financial information as possible are given by the desire to be aligned to the European standards, considering the integrated reporting framework. Aligning to the requirements of the integrated reporting using the pylons of sustainable development is more and more common within economic entities which wish to answer to the exigencies of the competitive market regarding the improvement of the business model and the business strategy.

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