
ERP Integrated Instruments – Opportunities and Challenges for Audit

*Casiana Maria DARIE, Ph. D. Student,
Faculty of Accounting and Management Information
Systems, Bucharest University
of Economic Studies, Romania,
e-mail: dariecasiana14@stud.ase.ro*

Abstract

The digital era affects all the fundamental areas known so far.

In meeting the high levels of competition and industry pressures, the organizations used IT systems to help them achieve market advantages by saving resources, developing domestically and adapting to the challenges posed by the external environment.

This paper includes in the first part a description of the role of systems such as ERP, Business Intelligence, "Analytics", "Big Data" and Computer Assisted Audit Techniques – CAAT's in the activity of auditors but also in collecting and processing a large volume of data by those in charge with the financial accounting field. In the second part, with the help of the questionnaire, data on the use of these systems by Romanian auditors were collected and analysed.

Key words: *integrated systems; financial audit; ERP; BI;*

JEL Classification: *M40, M42, O33*

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Introduction

Technology plays an important part in today's business environment. Many companies are increasingly relying on computers and software to provide accurate information within the shortest delay which helps the business management. The need for an IT solution in all businesses is growing for better functioning.

Therefore, many corporations have widely adopted information technology by implementing ERP (Enterprise Resource Planning) decision support systems to carry out their business transactions and meet their data processing needs.

The new business models, which are based on an ERP system, contain process-oriented operations, thus increasing productivity but also meeting the requirements of economic performance.

The survey addresses the field offered by Business Intelligence in terms of the options it offers for financial audit, especially in the processing of financial and accounting data and the capabilities of real-time monitoring and control of the main activity indicators present in organizations.

The audit profession must "lean" towards both the opportunities and the challenges posed by the integration and adoption of ERP systems, as they have the opportunity to learn, evolve and capitalize on their already proven ability to adapt to the needs of a world. business in rapid change (Farcane, 2020).

All today's theoretical approaches bring to the fore the notion of information. Around this term are built work systems, communication channels, procedures, norms, theoretical foundations, value units. Obtaining and evaluating information as well as assessing its compliance with pre-established criteria is a systematic process that defines the audit in general.

The role of this research focuses on the types of IT applications developed and the manner in which audit professionals assimilate and use them for their missions.

The article is based on a quantitative study obtained by analysing the data collected with the help of a questionnaire.

1. Literature survey

In the era of emerging technologies, auditing is considered a constantly changing profession because technology

impacts all areas of this profession (Chan et al., 2018; Schmitz & Leon, 2019). Specialized publications certify the need for knowledge about how these technologies streamline and accelerate economic processes, in order to simplify audit procedures, improve organizational performance and reduce risk.

In the literature, the audit activity is defined as the professional testing of information aimed at expressing a responsible opinion, independent in relation to a quality criterion (Oprean, 2007) In general terms, the audit may be defined as the process of issuing of an opinion based on the correspondence between the existing situation and a frame of reference (Grand & Verdalle, 1999).

Over time, the financial audit has undergone a continuous evolution with a direct connection with the current relations of the dynamics of the global economy. Issuing authorized opinions on a company's financial statements is a complex task that requires intensive and adequate training of auditors, along with sound legislative knowledge.

What is the objective of the audit mission?

The objective of the audit mission depends on the type of audit: internal or external audit, compliance or legality, financial attestation, performance or results, operational, management, etc.

The most complex is the audit of financial statements, conducted by independent auditors, according to International Standards on Auditing, in compliance with the Code of Ethics for Professional Accountants issued by the International Ethics Standards Board for Accountants (IESBA code). It is organized in Romania by Law no. 162/2017 of July 6, 2017, which regulates the statutory audit of the annual financial statements and the consolidated annual financial statements¹, prepared in accordance with the accounting law and the General Financial Reporting Framework applicable to that entity.

Starting with 2017, the statutory audit is coordinated by the Authority for Public Supervision of the Statutory Audit Activity (ASPAAS).

The purpose of the financial audit mission is determined by expressing an opinion on the extent to which the financial statements comply with the key objective, namely offer a true and fair view in accordance with the accounting requirements.

¹ Published in the Official Gazette of Romania, Part I, no. 548 of July 12th, 2017.

The main purpose of the auditors is to detect whether the financial statements comply with the requirements mentioned by them but also:

- warns the organization's management about possible problems existing in accounting and suggests solutions;
- helps to detect errors and frauds, trying to eliminate some of them.

The Romanian Chamber of Financial Auditors defines financial audit as “the activity performed by financial auditors in order to report an opinion on the financial statements”.

The auditor is considered to be a guarantor of the proven professionalism of management within an entity, so the *need* appears very clearly to *elaborate a common regulated framework on international level. The audit norms or standards* are recognized as the set of rules defined by a professional authority, to which auditors must be accountable for the qualification of their work.

Recent technological changes have led to a reconsideration of the approach of an enterprise as a whole, with specific processes and mechanisms.

The use of intelligent systems and their development within an organization allow managers to use the information and knowledge stored to make strategic decisions and solve more complex problems (Oprea et al., 2005).

The information explosion has led to the reconfiguration of databases, the emergence of data warehouses, Big Data, the widespread use of Data Mining processes, Cloud Computing techniques and methods, while redefining security procedures, access or data collection and processing. The Business Intelligence technique came in response to the needs of large companies to process large volumes of data, in real time, to obtain valuable information and at the right time, in order to efficiently and cost-effectively manage organizational processes in the new dynamics of the competitive environment. (Tofan, O.D., 2018).

We see how worldwide the integration of the “**Analytics**” and “**Big Data**” concepts as well as the acceptance of the reality imposed by them have led to a constant concern among audit companies but also of audited companies.

Ernst & Young in their work *EY Reporting* mention that accepting "Analytics" as a working tool is a complex task

for financial auditors, but the adoption of this way of processing can become an asset in differentiating competing companies in the future.

At the same time, the KPMG staff see this aspect of direct access to internal data through the capabilities offered by Data Analytics, as a faster way to detect transactions whose risk is high, therefore giving greater visibility to organizational structures in order to detect anomalies.

On the other hand, Ramlukan thinks that the integration of "Big Data" and "Analytics" tools in auditing is done more conceptually because accepting reports or views as audit evidence becomes quite difficult, even if they are consisting of a whole series of algorithms or rules.

The term of BI (Business Intelligence) was used by Richard Millar Devens in the study "Cyclopædia of Commercial Business Anecdotes" in 1865, which describes how a banker used various information about the business environment in order to make a profit and to develop competition-wise.

BI can also be defined as a combination of products, technology, and methods of organizing key information that an enterprise needs in order to enhance profit and performance. The main role of BI is to capitalize on information assets in business information and business analysis whose processes lead to accurate decisions and actions resulting in improved (Williams and Williams, 2006).

In order to add value through the information generated, the implementation of BI systems must take into account the following conditions:

- Offering real-time information on impact factors: employees, suppliers, partners, customers;
- Providing information in accepted formats such as e-mail, pdf, Excel;
- Enhancing users' abilities to interact with information.

Therefore, by analysing the data provided by BI systems, financial auditors can avail themselves of these benefits in order to complete their audit engagement, with a variety of ways in which they can identify the elements of fraud.

New information technologies come with dedicated solutions for organizations that face large volumes of data, whose transaction speeds exceed the capabilities of basic software, and which must apply multiple scenarios in order to obtain predictable analyses. It is observed how the urgent need for predictability is given by the increasingly complex economic environment, the current reality being

marked with numerous opportunities but also with challenges (Turban & Sharda, 2011).

Decision support systems (ERP) have as key features integration, routinization, standardization and centralization. They allow managers access to more comprehensive, real-time information so they can make better decisions. However, the implementation of ERP systems affects not only internal processes but also the external audit environment. Using Enterprise Resource Planning, companies can integrate data from different departments or business segments, which requires group-level consolidation, standardize data, improve financial control, and significantly reduce financial closure cycles, as well as data entry / validation errors (O'Leary, 2004).

These benefits have the ability to eliminate the main impediments known to auditors for delaying audit reports, such as poor data standardization, poor financial control, inefficient financial closure, and even poor integration of various systems (Behn et al., 2006). Thus, ERP systems can help professionals in performing the audit report.

Furthermore, Morris (2011) found that firms that have implemented an ERP system "are less likely to report internal control deficiencies" and this leads external auditors to consider that organizations with ERP have stronger internal controls compared to with those who do not have this technology.

Mainly ERP involves a new policy that reflects what it means to act and think in the direction of economic processes, thus being considered a strategic management solution.

PwC (2015) suggests that entities can better use their systems (ERP) to analyse financial activity and make decisions that will ease the burden on the tax department when performing compliance tasks at the end of the year.

The recent economic challenges that have taken place globally as well as the transformations in the information area, generated especially by technological progress, have put pressure on the financial audit both at the level of the regulatory framework and the working tool.

Thus, a series of changes are recognized and applied at the level of standards and laws meant to give the audit adapted and updated working methodologies that maintain the role of guarantor of the correctness of the audited information in front of those who are interested.

Computer Assisted Audit Techniques (CAATs) is also a tool used by auditors, being placed in almost any

company where advanced auditing or accounting takes place. This tool facilitates the search for irregularities in the data obtained, and the accounting department will be able to provide more analytical results. It is considered a really useful tool that helps the auditor to work in an efficient and productive way, moreover, more "forensic accounting" can be done with more data.

CAATs can be used in any of the stages of the audit mission in order to systematize the data using different query techniques, calculations and sample selection, using mathematical functions but also economic-financial analysis, examination of internal control and data integrity, finding the risks of the entity and their evaluation, control of accounting processing and other systems used by the information system of the audited company.

CAATs may be defined as "any use of technology that helps to complete the audit mission". This "broad" definition includes automated working documents (R. L Braun, 2003) or "the use of software that can help the auditor perform and achieve the objectives of the audit engagement" (S.A. Sayana, 2003).

The International Auditing Standards that mention the importance of the auditor's use of CAAT's are ISA 315, ISA 330, ISA 330, reformulated standards relating to the planning of the audit of financial statements, the identification and assessment of risks of material misstatement by understanding the entity and its environment; to the auditor's response to the assessed risks. (ACCA, 2015).

In general, any economic entity faces many internal or external challenges, such as legislative changes, the socio-political context or changes in the labour market. There is a continuous dependence between the success of the activity and the way in which the organization manages to manage its resources in a concrete and realistic way, constantly evaluating its activity, competitive environment, cost structure, opportunities but also threats of any kind. Thus, the managerial act cannot be efficient without constantly having under analysis a real overview, but also in detail of the coordinated activities. Its objective is to lead and guide an organization in the sense of developing organizational values, responsibilities and capabilities and an administrative system that links and streamlines operational, strategic and tactical decision-making at all hierarchical levels (Bensoussan & Flesher, 2009).

Regulators of financial auditors around the world are following technological developments in this area with great interest. Martin Baumann, PCAOB's auditing director, said in a video interview that "regulators need to ensure that audit standards facilitate possible improvements in auditing rather than serve as an obstacle to progress in this area."

On the other hand, according to the director of the Rutgers University Accounting Research Center and the Continuous Auditing & Reporting Lab, "changes in the audit approach are needed to take advantage of the new environment, and these changes will continue to occur as corporate processes develop".

The American Institute (AICPA) launched in 2014 an initiative to improve the auditor's quality, namely "Enhancing Audit Quality" (EAQ), providing annual

reports on their website www.aicpa.org on the use of new audit technologies and methodologies, which will allow auditors to provide ongoing assurance and faster and more relevant results in their reporting.

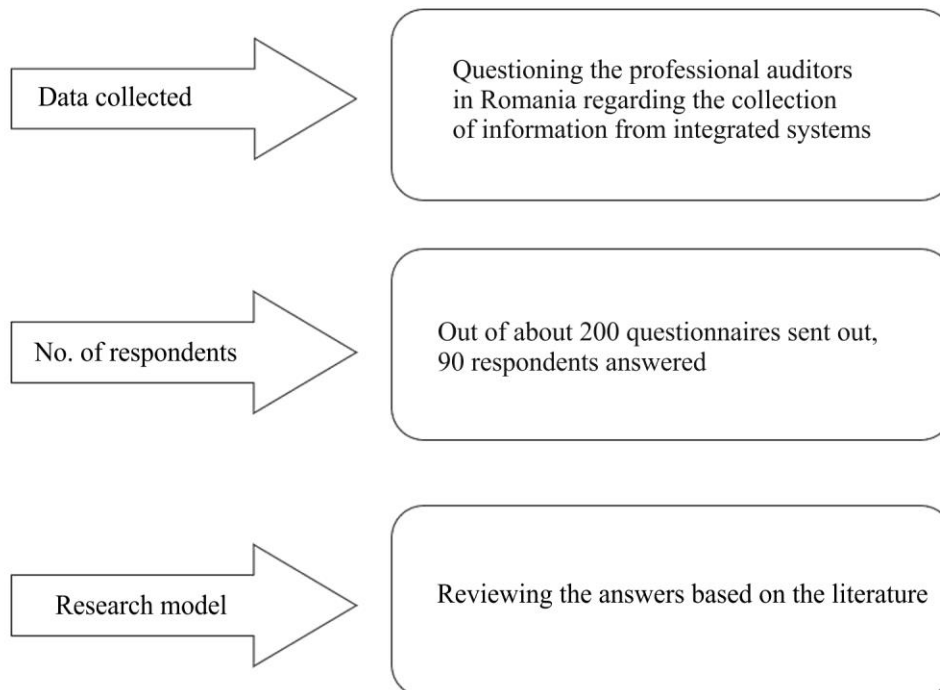
2. Research methodology

The method used in the study is a quantitative one, based on a questionnaire addressed to both public and private auditors.

Its objective is to know what software / tools they use in the audit activity, the advantages and disadvantages of the customer's use of an ERP system. Thus, they constitute an opportunity and at the same time a challenge for the fulfilment of the audit mission.

The research methodology applied to this study was synthesized in *Figure no. 1*.

Figure no. 1. The basis of the research methodology



Source: Processed by the author

3. The results of the study

We shall continue by presenting and interpreting the results of the quantitative study by analysing the data collected based on a questionnaire addressed especially to professionals who perform audit missions.

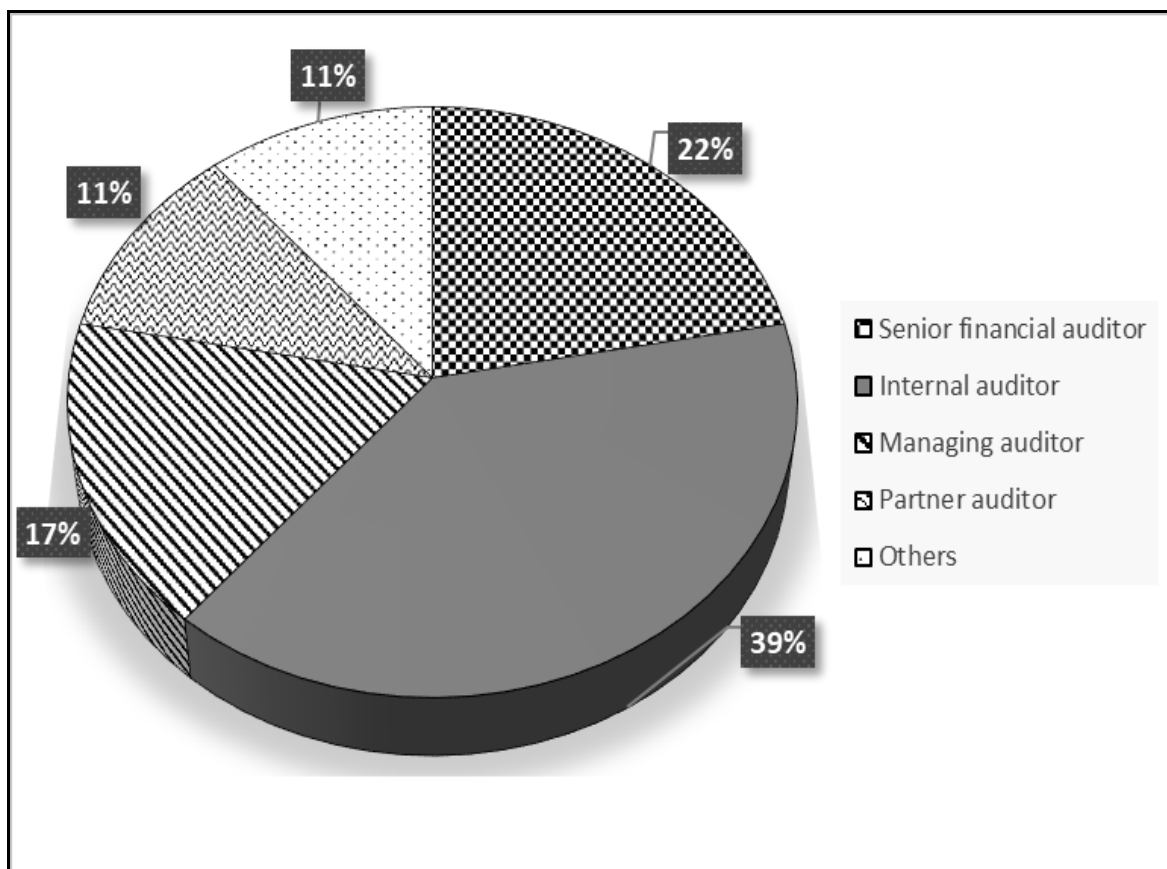
The questionnaire includes 8 questions through which we identified the auditor's position and professional experience, their sampling methods as well as the

experience regarding new technologies accumulated during the audit missions.

The questions were designed based on the presentation of the advantages, disadvantages and reasons for implementing such a system by integrated system distributors.

The position within the company is very important, it shows: the age, the experience and the professional training of the auditor.

Figure no. 2. Respondents' position within the company



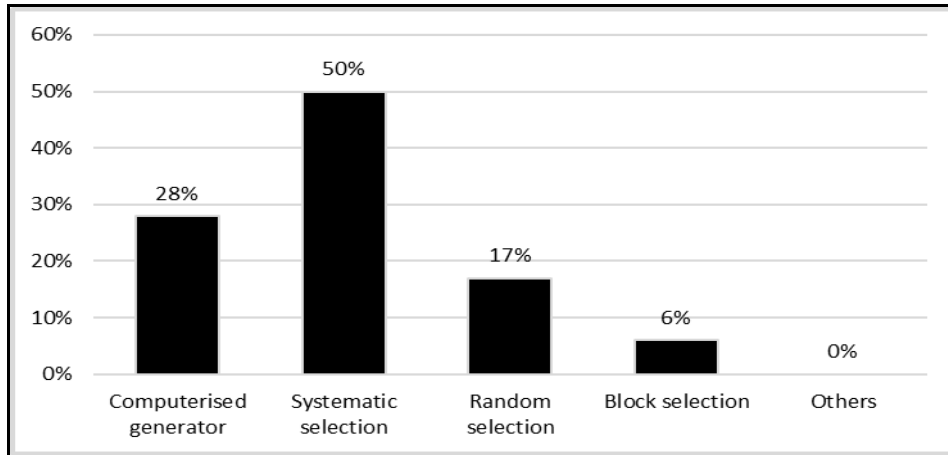
Source: Processed by the author

Analysing the data collected through the questionnaire, from **Figure no. 2** results that we have a varied / representative range of positions held by respondents in various companies that provide audit services or in their own company.

Thus:

- internal auditors hold a share of 39%;
- managing auditors represent 17%;
- senior financial auditors' share is 22%;
- partner auditors represent a quota of 11%.

Figure no. 3. Sampling method



Source: Processed by the author

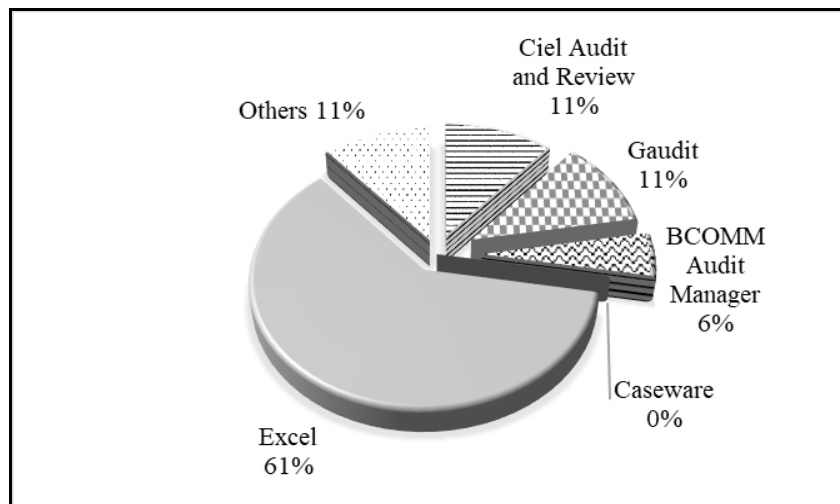
Given that the auditor processes a lot of data and often has to apply a sampling method because it cannot test 100% of the population, we considered it necessary to know which sampling method they use (**Figure no. 3**). These are listed and presented as a methodology in International Auditing Standard 530 *Audit Sampling and Other Selective Testing Procedures*. Sampling methods can be statistical or non-statistical. The decision whether to use the statistical or non-statistical approach depends on the professional judgment of the auditor as to the most

effective way to obtain appropriate audit evidence, sufficient in those circumstances.

Thus, from the centralization of the answers provided by the auditors it resulted that:

- The systematic method is used by 50% of the respondents;
- Computer generation holds 28% of the answers;
- Random selection is used by 17% of respondents;
- Block selection is used by 6% of respondents.

Figure no. 4. Audit-dedicated software



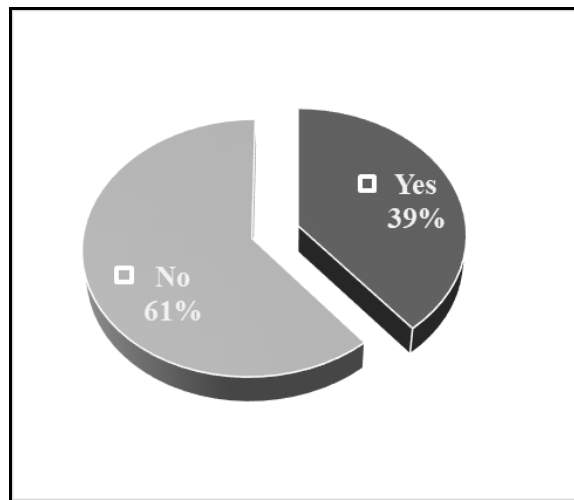
Source: Processed by the author

The analysis of the answers related to the type of software used in the audit activity showed the following (Figure no. 4):

- over 61% of auditors use Excel worksheets;
- 11% use Ciel Audit Review and Gaudit;
- 6% use BCOMM Audit.

On the one hand, we conclude that the vast majority of financial auditors have become accustomed to Excel worksheets and on the other hand some auditors have not tested or do not trust the dedicated programs to carry out the audit stages.

Figure no. 5. CAAT's in the financial audit activity

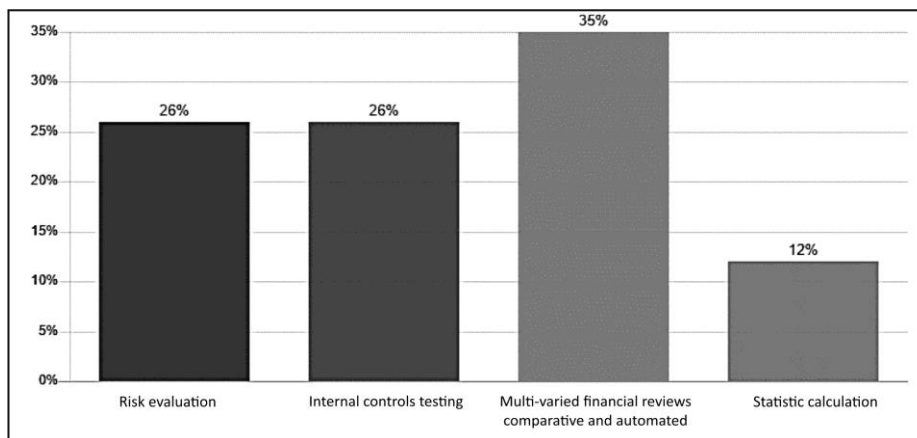


Source: Processed by the author

CAATs may be used in any of the stages of the audit mission in order to systematize the data using different query techniques. Only 39% of the respondents answered

that they use these tools, and 61% said that they do not use them or have not tested them yet (Figure no. 5).

Figure no. 6. The stages of the audit mission in which CAAT's tools can be useful



Source: Processed by the author

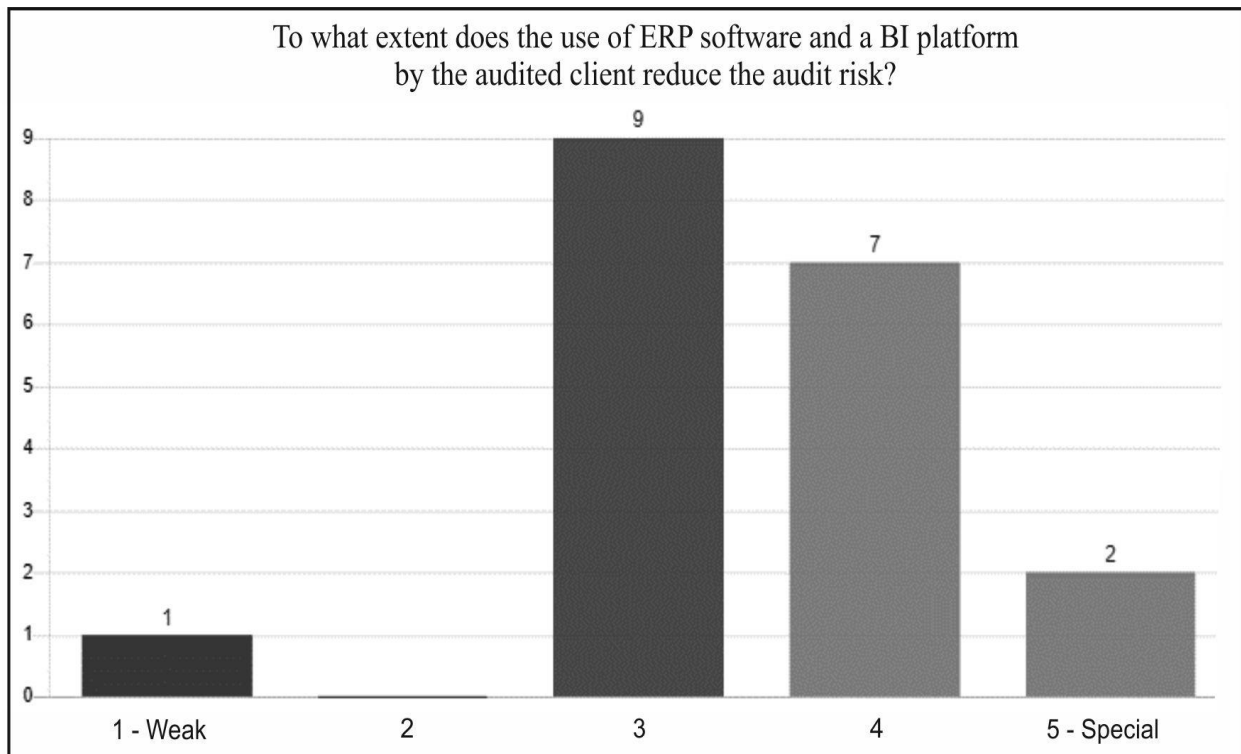
We further examined the stages in which an audit engagement involves computer-assisted audit techniques (CAAT's). As we see from the answers summarized in **Figure no. 6**:

- 35% declared that these techniques are useful in performing multivariate financial analyses,

comparative and automated calculations;

- 26% answered equally that the usefulness is observed in the risk assessment stage and in the testing of internal controls;
- whereas 12% of respondents consider CAAT's audit techniques useful in the statistical calculation stage.

Figure no. 7. Reducing audit risks by using ERP software and / or a BI platform



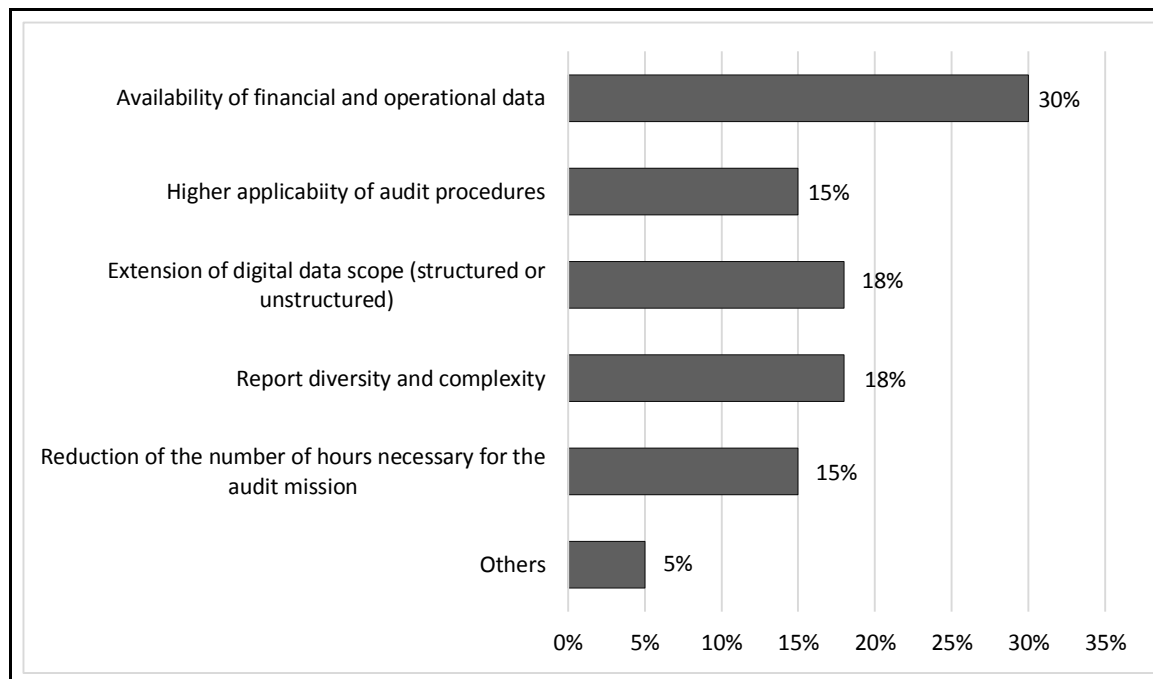
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We considered it important to find out to what extent the auditors consider that the use of ERP systems or BI platforms by client companies can reduce the audit risk.

Following the results obtained, we noticed that in a proportion of 50% on a scale from 1 to 5, where 1 is the level "to a low extent" and 5 is the level "to a high extent", the respondents consider it important to use these types of systems,

and if we look at **Figure no. 7**, we conclude from the answers that few auditors still do not believe in the usefulness of decision support tools, namely only 6% of respondents appreciated the minimum reduction of audit risk using ERP systems.

The evolution of technology also ensures progress in the financial field, implicitly changing and adapting auditors to the new future prospects of the Romanian market.

Figure no.8. Advantages of ERP in auditing


Source: Processed by the author

From the data presented in **Figure no. 8**, we can see which are the advantages of ERP considered by financial auditors as the most important.

Of the total respondents, 29% considered the *availability of financial and operational data* as an advantage of using ERP. Integrated systems combine all the financial information from all departments, which creates a real advantage for anyone who needs it. Information is found in real time, and this can be considered another reason why the vast majority of auditors trust the ERP systems used by their clients.

Diversity and complexity of reports as well as the *data extension in digital format (structured or unstructured)* were chosen by 18% of respondents. It is clear that the use of an ERP provides a wide range of reports that can help auditors fulfil their mission. If, in addition to the existence of an ERP, we also add a BI platform, the collection and processing of information related to values becomes easier and the information easier to interpret.

Greater applicability of audit procedures is another advantage noted by 16% of respondents. They found that the use of an ERP system by the audited client helps in the audit mission by the fact that the applicability of the procedures is much more efficient and covers a larger volume of data.

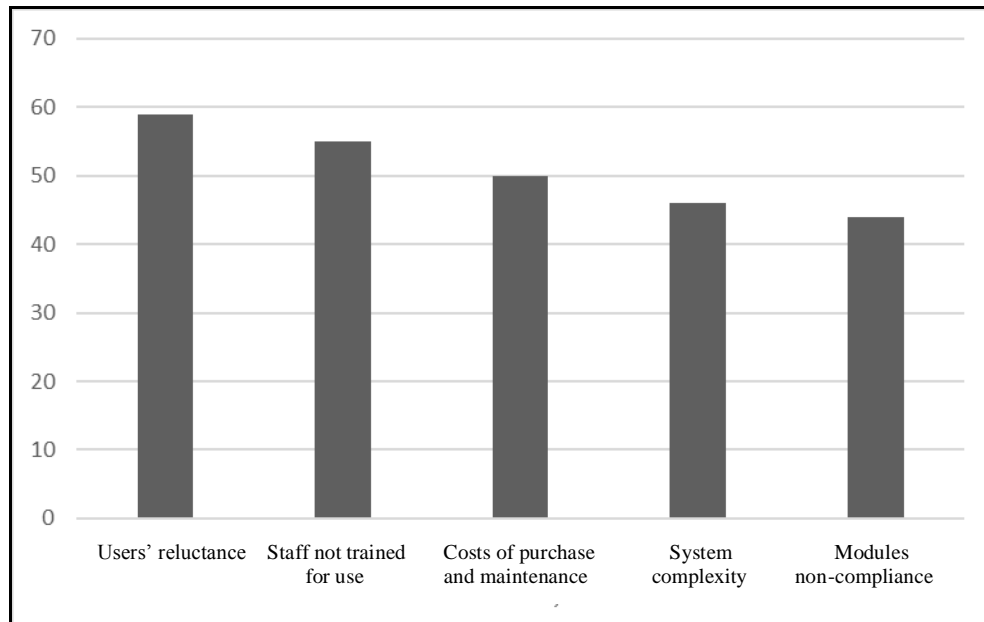
Decrease in the number of hours required for the audit mission was considered an advantage of 13% of the responding auditors. This can also be influenced by how users know or not how to use the program and how well they have been trained since the implementation of the system.

Also 2% of the total respondents considered that the benefits depend on the *type of ERP used by the customer*.

In the study we proposed to know the disadvantages considered by auditors as the most common in extracting data from customers using ERP.

I submitted to my attention a number of five statements for which a score was given from 1 - minimum to 5 - maximum.

Figure no. 9. Disadvantages of using ERP by the audited client



Source: Processed by the author

Thus, as can be seen from the centralized data in **Figure no. 9**, the ranking was as follows: user reluctance, staff not trained for use, cost of purchase and maintenance, system complexity and lastly the non-compliance of the modules.

By analysing the answers to the last two questions, we conclude that integrated ERP systems are an opportunity but also a challenge for performing audit missions.

4. Conclusions and recommendations

The empirical study reveals that the two areas, financial audit and information technology (ERP and / or BI) are mutually influenced and enhanced on a permanent basis.

Both notions presented, "financial audit" and "Business Intelligence", have as final product the information, in a correct, accessible, verified form and that respects certain quality standards. The financial audit must be based on information that meets certain quality criteria, as established by the IASB (International Accounting Standards Board, International Financial Reporting Standards, 2011): relevance, accurate representation,

comparability, verifiability, timeliness, intelligibility. The validation of the annual accounts is possible by complying with these conditions and the financial audit plays a key role in this regard. The processing of accurate and relevant data and information becomes a basic condition for achieving consistent results that reflect the reality of an organization's financial situation. In the spirit of this idea is highlighted the notion of financial-accounting information around which the whole plea on the convergence of the two approached fields is built. The quality criteria pursued in obtaining such information determine the application of the best processing methods which must take into account the scale of the activity, the costs, the availability of resources, the reference criteria etc.

From the analysis of the literature, we may conclude that the integration of Business Intelligence reports and ERP systems into the sphere of information sources of a financial audit mission creates opportunities and decisive results can be reached in formulating a reasoned opinion on the financial statements. The quality criteria imposed for the processed information, both in the financial audit and in the intelligent IT systems, can create a common frame of reference with can result in obtaining valuable financial-accounting information for those interested.

Accuracy of calculations, elimination of sampling, processing capabilities of large volumes of data lead to the conclusion that, at the current level of development and implementation, Business Intelligence applications can contribute to the correct information of the organization's management and external auditors.

Given all the aspects mentioned above regarding the role of technologies in organizations everywhere but also the increasing complexity of accounting systems and the multitude of recorded transactions, there is an accelerated replacement of "usual" audit techniques with modern techniques. The fact that most supporting documents, such as invoices, notices, accounting records, orders are available in electronic format, facilitates the work of users in drafting, sending, viewing and also changes the audit methods used by auditing professionals, this constituting a challenge.

The quantitative study based on the questionnaire showed the following: on the one hand the audit activity is performed by most auditors by using Excel spreadsheets, the systematic sampling method is most often used, and on the other hand the use by companies client of an ERP system has multiple advantages but also disadvantages.

The usefulness given by the integration of information technologies, thus increases the efficiency and effectiveness of the activities performed by financial auditors by:

- automation of cyclical operations and focus on certain critical processes;
- increasing the quality level of audit missions by standardizing audit methods and by covering an increased volume of data;
- discovering anomalies or errors by performing detailed analyses;
- considerably shortening the duration of an audit etc.

In our opinion, auditors must learn continuously during the professional activity and permanently leave the area of professional comfort. Continuing to promote the principle of lifelong learning, they are the solution for ensuring high quality professional services. In an economy based on globalization and digitalization, information means power, and many companies are interested in obtaining data in the hope that they can rank higher on the competitive market top.

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