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# Digitalization in the Accounting and Auditing Profession through ERP Systems

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## Abstract

*The objective of this paper is to observe the possibility of digitizing the accounting and auditing profession by implementing ERP systems, as a result of massive changes in technology over time. The purpose of this paper is to add value to the literature, given the positive or negative aspects of the digitization of the accounting and auditing profession using information systems such as ERP.*

*ERP systems such as information systems have a key role in managing and conducting accounting and auditing, providing support to professional accountants and auditors.*

*The research method used to identify the possibility of digitizing the accounting and auditing profession through ERP information systems is based on the analysis of the archive (literature review), collecting data and information from selected articles from different databases.*

*Following the study, the authors concluded that the accounting and auditing profession can be digitized through the use of ERP information systems, as it allows the automation of a large number of tasks, and the information processed with these systems is much more transparent and accurate.*

**Key words:** digitization, ERP systems, accounting profession, audit, internal control

**JEL Classification:** M15, M40, M41, M42

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## Introduction

Information systems have evolved very quickly in a short period of time, becoming essential in the day-to-day activities of professional accountants and auditors, so companies have begun to implement a large number of these systems in order to significantly improve their work. Due to technological progress, the accounting and auditing professions had to adapt quickly to technological alternatives. Thus, according to the study conducted by Market Intelligence and Consulting Institute (2009, cited by Chang et al., 2014), it was found that most companies that have implemented ERP systems are large, because the activities carried out by these companies are much more numerous, and the possibilities for implementing these systems are much greater financially.

The organization's decision to implement these ERP systems depends very much on the "possibility of meeting the organization's objectives in real time" (Galani, Gravas and Stavropoulos, 2010), ensuring that the information presented is correct and complete. ERP systems have the role of significantly influencing the performance and strategy of the organization through the digitization of as many activities as possible (Hietala and Päivärinta, 2021), as well as the advantages and disadvantages of data processing with these ERP systems (correct and complete data, transparency data, increased efficiency and effectiveness because all data is stored in a single database). All processed data can be disseminated much more easily between organization departments, providing a "correct and complete picture of the organization's situation" (Kanellou and Spathis, 2013). The main purpose of the paper is to highlight the positive and negative aspects of the digitization of the accounting and auditing profession using ERP systems, as well as the position and role of the professional accountant in the company in the age of technology digitization.

The term digitization means "the use of new technologies, robotics, cloud services, intelligent systems and Big Data that quickly entered the accounting area" (Boghian and Socoliu, 2020) and mainly contributed to increasing the efficiency of

the activity carried out by organizations and the accuracy of the data processed with this ERP system.

The use of ERP systems leads to the digitization of as many activities as possible, so accounting professionals "are less involved in manual data processing" (Rodriguez and Spraakman, 2012), allowing organizations to perform various analyzes based on data processed with these systems and considerably minimizing possible human errors.

This article is structured in 4 parts: a section of the literature review where the authors presented the main concepts specific to the topic of the paper, a section on motivating the choice of research method through which the way of collecting relevant information and data was presented, a section for the analysis of the data collected and a section in which the main conclusions of the paper were presented and some directions for future research.

## 1. Review of specialty literature

ERP systems have evolved over time, continuously improving their functions, ensuring a correct and complete processing of information entered by users (Seethamraju and Sundar, 2013). At the same time, this evolution of the ERP system among accountants and auditors is due to the fact that "many customers in the business field" use these ERP systems, because they incorporate a large number of functions. These constantly evolving systems can substantially change the accounting environment and practice, so a professional accountant or a good auditor must always be prepared for new changes in information systems and the business environment (Groșanu et al., 2020).

ERP systems are defined in the literature as "complex integrated applications" (Spathis and Ananiadis, 2005) consisting of a "set of integrated application modules covering most business functions (including accounting and auditing)" (Scapens and Jazayeri, 2003 cited by Hassan and Mouakket, 2016, p. 488). All information processed with these ERP systems is stored in a single database, giving users the ability to access and generate information in real time. Each module of

the ERP system represents a different function of this system such as: specific modules “supply activity, finance, accounting, production, human resources, sales and specific activities for different customers” (Rajal and Baral, 2015). These modules integrate most of an organization's activities. ERP systems offer the opportunity to develop and streamline their business, organizations starting to implement integrated ERP systems in as many as possible, because these systems allow the automation of a very large number of activities.

Automation is defined in the literature as “the process of digital transformation of business”, especially the accounting and auditing profession, by using integrated ERP systems. The digitalization of the accounting and auditing profession depends on the “perception and analysis capacity” of the organization's employees (Lacurezeanu, Tiron-Tudor and Bresfelean, 2020, p. 623).

The digitization process is an opportunity for “redefining the role of the accounting profession” and auditing, as well as the degree of involvement of professional accountants and auditors in the decision-making process (short, medium and long term) (CECCAR, 2019).

In the following subchapters we will address the possibility of digitizing the accounting and auditing profession by using ERP information systems.

### 1.1. Digitization of the accounting profession

The accounting profession is often compared in the literature with “a living being that evolves to an increasing extent as a result of progress in the IT and economic and social field”, everything being in a continuous change (CECCAR, 2019). Thus, professional accountants play an important role in “managing the systems and processes that support the acquisition, management, analysis and distribution of information” in the digital age (Pavel, 2017 cited by CECCAR, 2019).

The automation of the accounting processes can be accomplished only by implementing ERP systems that ensure the fulfillment of work tasks through the implemented modules. According to

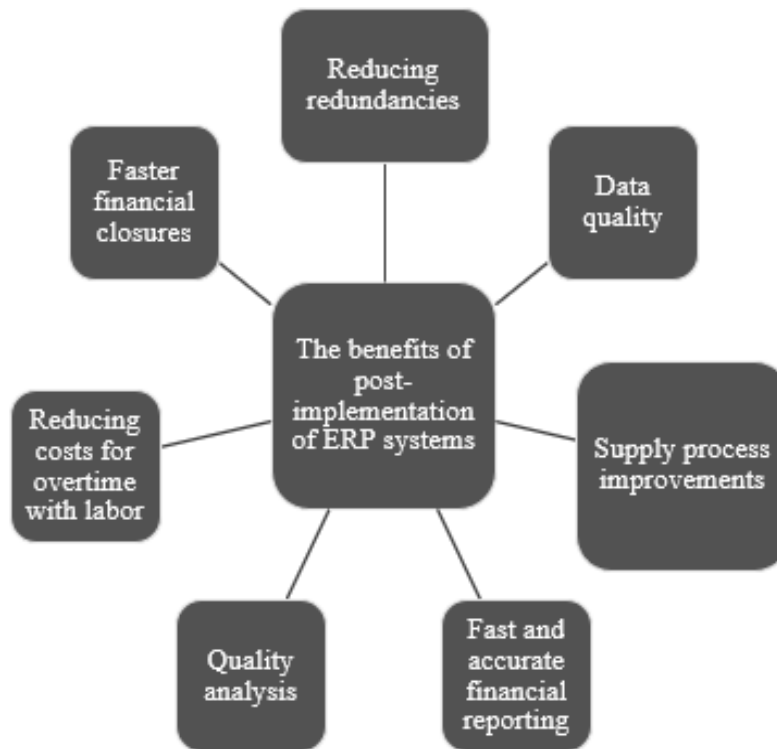
Cooper et al. (2019), the role of the professional accountant will no longer be limited only to the actual data processing (most of the activities being performed by ERP systems), but to allocating more time to analysis and forecasting activities to the detriment of routine ones. The main roles that a professional accountant can play as a result of automating accounting processes using ERP systems are: consulting, analysis and strategic planning. Rodriguez and Spraaakman (2012) observed that the implementation of ERP systems leads to the elimination of manual workloads by providing “support in the processing of daily transactions, support in internal decision-making and fulfillment of obligations related to administration (legal obligations)” (Spathis and Constantinides, 2004). Other advantages of digitizing the accounting profession are: efficient communication of results or information between departments (because the processed data is saved in the database of the ERP system), fast access to documents, and faster data processing with these systems.

These ERP systems offer the organization's managers the opportunity to have a more complex financial vision of the entire organization (Galani, Gravas and Stavropoulos, 2010).

The implementation of ERP systems usually has a “significant impact on the entire organization”, because the information provided by these ERP systems provides support in substantiating managers' decisions on the entire activity of the organization (Grabski and Leech, 2007). In general, the implementation of ERP systems is quite expensive, and the failure of the implementation would have a devastating impact on the organization (example: bankruptcy). Thus, one year after the implementation of ERP systems, users of financial-accounting information have a much more positive perception compared to the pre-implementation period of these systems (Spathis and Ananiadis, 2005).

The authors Galy and Saucedo (2014) identified some benefits of post-implementation of ERP systems within the organizations shown in *Figure no. 1*.

**Figure no. 1. The benefits of post-implementation of ERP systems**



Source: Galy and Saucedo, 2014

Managers of organizations that have implemented ERP systems have seen a significant increase in resource efficiency and much better performance control.

Lazarus and McManns (2006, cited by Al-Jabri and Roztocki, 2015) defined the transparency of information as “access to financial-accounting information by users of these systems” needed to make business decisions. Street and Meister (2004, cited by Al-Jabri and Roztocki, 2015) identified two types of information transparency: internal and external. Internal transparency reflects the degree to which an organization's employees have access to the information needed to perform their tasks, while external transparency reflects how information is shared outside the organization.

The way is data stored and shared with ERP systems provides a higher level of transparency to this information.

In addition to data transparency, the systems also offer the ability to assess risks and increase the quality of audit due to process automation (Făniță, 2020a). However, it should also implement a series of controls in order to ensure that the data stored in the application database is secure. Control can be ensured by implementing and exercising mechanisms that lead to the regulation of user behavior in order to avoid intentional or unintentional alteration of data stored in the application database.

## 1.2. Digitization of the audit profession

Regarding the process of digitization of the audit profession, the digital infrastructure (platform, software) must be considered that “it ensures the connection between the members of the audit team and the audited organization” (Făniță, 2020a).

The digitization of the audit process allows the audit team to identify any anomalies in the ERP systems with which the accounting data were processed, as well as the opportunities and financial risks of the organization. Other benefits of digitizing the audit process would be a much deeper understanding of the data processed with ERP systems, as well as a much more effective monitoring of fraud controls on the basis of which to provide a recommendation to improve financial-accounting reporting processes. A digitally transformed audit is based on “the use of digital channels from start to finish in the audit process of the client organization” (EY.com, 2019).

Făniță (2020b) considers that a digitized audit can be successfully completed only if the audit team has real-time access to “data, systems and analytical applications of the client organization” to avoid duplication of data collection efforts.

Following the digitalization of the audit process, “auditor skills will no longer be limited to the analysis of financial statements”, especially audit evidence, but will also to have IT skills (Șuşnea, 2019).

## 2. Research methodology

The main objective of our paper is to observe whether the accounting and auditing profession can be digitized by using ERP systems, mainly showing the advantages and disadvantages of the digitization process.

The research method used started from the exhaustive analysis of the works dealing with the subject of digitization of the accounting and auditing profession through ERP type information systems. To select articles relevant to the research topic, we used various databases such as: Google Scholar, ScienceDirect, Web of Science, Emerald Management Ejournal in which we conducted a search based on the following keywords: “digitization of the accounting profession through information systems such as ERP systems”, “digitization of the audit profession through ERP systems”, “implementation of ERP systems”, “advantages and disadvantages of ERP systems implementation” and “digitalization of the audit process”. The criteria on the basis of which we selected the articles were the year of publication and the relevance for the subject of this paper.

Based on the selected articles, we also established some research questions:

- Q1.** *What does it mean to implement ERP systems in an organization that provides accounting and auditing services?*
- Q2.** *What are the factors for the successful implementation of ERP systems?*
- Q3.** *What is the relationship between the post-implementation effects of ERP systems and financial performance?*
- Q4.** *What is the satisfaction of professional accountants and auditors in using ERP systems?*
- Q5.** *What are the advantages and disadvantages of ERP systems in the accounting and auditing profession?*
- Q6.** *What are the future digital advances in accounting?*
- Q7.** *What are the main skills that future professional accountants and auditors should have as a result of digitization?*
- Q8.** *What are the main audit and inspection challenges regarding the use of ERP systems?*

These questions will be analyzed in the next section, based on the selected articles from different databases.

## 3. Results analysis

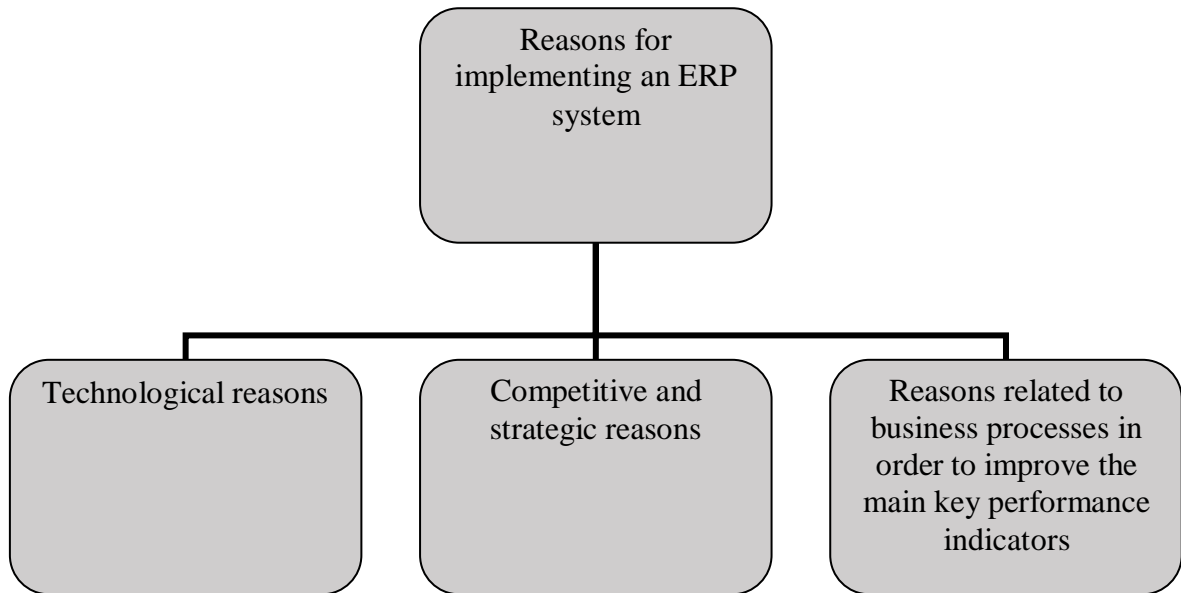
In this section, the authors identified in the selected articles the main key issues to answer the questions mentioned in the previous section.

- Q1.** *What does it mean to implement ERP systems in an organization that provides accounting and auditing services?*

The implementation of a new IT system (*for example: ERP system*) within the organization involves the complete redesign of the processes of existing IT systems and the reorganization of the entire flow of information and activities, as well as a restoration of the organizational culture. The ERP system implementation process consists in analyzing the main risks to which the organization may be subjected during or after the completion of the ERP system implementation. The implementation period of the ERP system can be between 6 months and 2 years.

The reasons why the managers of the organizations decide to implement ERP systems are: the large volume of activities or transactions, the manual processes prone to errors or redoing, the high human effort to execute various activities or periodic changes in the IT field. Other reasons for deciding to implement ERP systems within the organization are shown in *Figure no. 2*.

**Figure no. 2. Reasons to implement an ERP system**

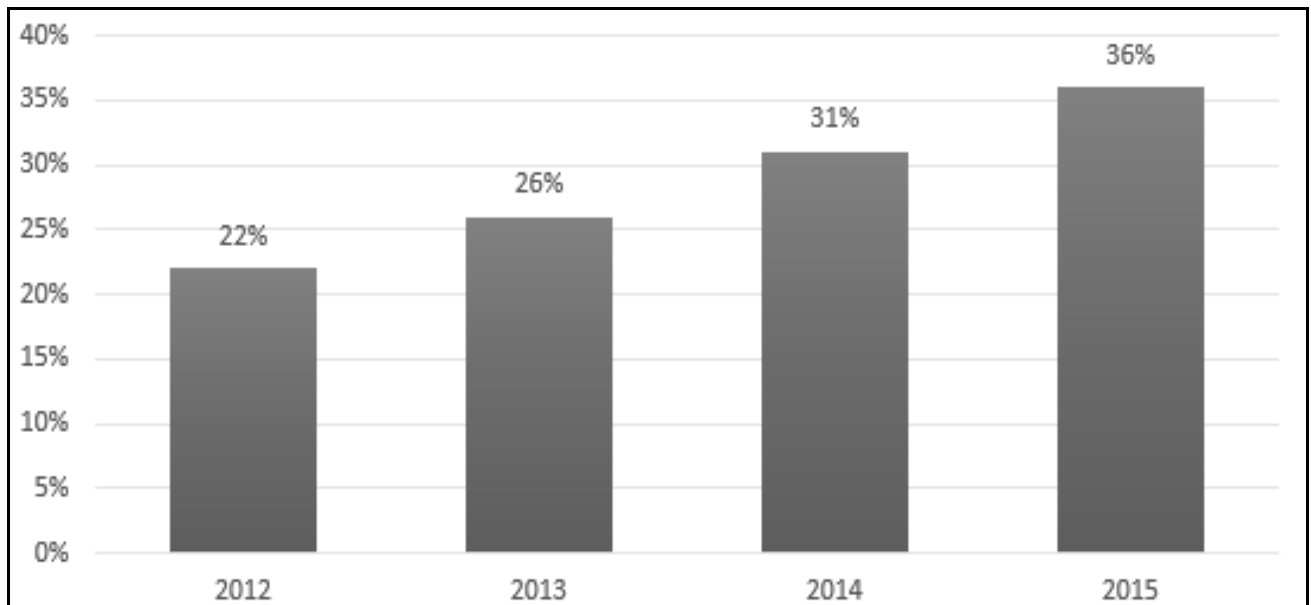


Source: Authors' creation

The authors Amado and Belfo (2021, p. 581) researched the implementation rate of ERP systems within

organizations in the period 2012-2015, noting a significant increase in these rates (*Figure no. 3*).

**Figure no. 3. Evolution of ERP systems implementation rates**



Source: Amado and Belfo, 2021, p. 581

The main purpose for which the implementation of the ERP system is desired is the efficiency of the entire activity and offering credibility and a greater degree of transparency to the processed information.

**Q2. What are the factors for the successful implementation of ERP systems?**

The main factors for the successful implementation of an ERP system are:

- identifying business processes that could be vulnerable in the process of implementing ERP systems
- the use in implementation of a larger number of people from the IT department and other departments to ensure an efficient communication between them in order to implement the system in optimal conditions.
- gradual implementation of the ERP system because it is a complex IT system, requiring a careful and well-planned implementation.
- completing each stage established in the implementation plan.
- establishing a maintenance plan after completing the implementation of the ERP system.

**Q3. What is the relationship between the post-implementation effects of ERP systems and financial performance?**

Any organization that decides to implement ERP systems wants to improve its financial performance, but also other indicators such as: market position, cash used from one period to another or earnings per share.

The main purpose of the ERP system in financial reporting is to reduce the working time to perform a certain task or reduce redundancy so that the financial data processed with these systems are much clearer and more concrete, facilitating much faster financial reporting.

Thus, there is a strong relationship between the implementation of the ERP system and the financial performance, because the data processed with these systems provide credibility and transparency, resulting in a significant improvement of the financial indicators.

**Q4. What is the satisfaction of professional accountants and auditors in using ERP systems?**

Following studies by Kanellou and Spathis (2013), they found that the volume of information that needs to be processed manually has been significantly reduced following the implementation of ERP systems, leading to increased satisfaction of accountants and auditors as long as ERP systems meet its requirements in information processing (content, accuracy, format).

**Q5. What are the advantages and disadvantages of ERP systems in the accounting and auditing profession?**

In **Table no. 1** we highlighted the advantages and disadvantages of ERP systems in the accounting and auditing profession.

**Q6. What are the future digital advances in accounting?**

According to the study conducted by Groșanu et al. (2020, p. 55), future digital advances in accounting could be represented by:

Direct exchange and processing of data with the customer or supplier

Reading or recognizing documents

Electronic payments

Replacing Excel with other more automated calculation tools

Much more prompt answers to technical questions in the field of accounting.

**Table no. 1. Advantages and disadvantages of ERP systems in the accounting and auditing profession**

User category	Advantages	Disadvantages
Accounting profession	<ul style="list-style-type: none"> <li>– fast processing of financial-accounting information</li> <li>– storing information in a single database and controlled access to data</li> <li>– a better control and monitoring of the information processed with these systems</li> <li>– better management of resources (financial, material and human)</li> <li>– accuracy and completeness of information</li> <li>– maximum profit</li> <li>– cost reduction</li> <li>– time saving</li> <li>– limitation of human errors</li> </ul>	<ul style="list-style-type: none"> <li>– permanent changes of legislation, so the ERP system must always be updated</li> <li>– difficult adaptation to new IT systems of users who do not have sufficient IT skills or do not participate in training programs</li> </ul>
Auditor	<ul style="list-style-type: none"> <li>– fast processing due to the digital connection between the auditor and the client organization</li> <li>– increased efficiency</li> <li>– quick access to key information (no need to manually search for information)</li> </ul>	<ul style="list-style-type: none"> <li>– the retention of the client-organization regarding the security of information sharing electronically</li> <li>– incompatibility between the information system used by the client organization and the information system used by the audit team</li> </ul>

Source: Authors' processing after Hietala and Päiväranta (2021), Hsu, Yen and Chung (2015), Kanellou and Spathis (2013), Nwankpa (2015)

**Q7.** *What are the main skills that future professional accountants and auditors should have as a result of digitization?*

Due to the rapid evolution of information technology and the digitization of activities, both professional accountants and auditors must have in addition to the usual skills (accounting, finance, auditing) and digital skills (in the use of information systems).

Following the digitization of the activities carried out by professional accountants and auditors, they will be able to devote more time to consulting, data analysis and strategic planning, to the detriment of routine activities.

**Q8.** *What are the main audit and inspection challenges regarding the use of ERP systems?*

The main audit challenges could be related to the identification of risks following the implementation of the new system, as the entire structure of the

organization changes as a result of this process. The main problems are related to the security of the internet network, the database and the computer system.

After the implementation of ERP information systems, a detailed analysis of data security in the new information system must be performed. Auditors must first understand the architecture of ERP systems in order to identify vulnerable areas of the system (Chang et al., 2014).

## Conclusions

The massive evolution from recent years in the field of technology has a significant impact on the process of digitization of activities carried out daily by people. The accounting and auditing professions are increasingly digitized as a result of technological progress, as more and more organizations implement high-performance ERP systems in order to automate a growing number of activities,



especially those that are repeatable, procedural, structured or simple. Thus, ERP systems are becoming more and more present in financial-accounting or auditing activities due to the many advantages they offer: fast processing of a large volume of data, reduction as much as possible of "dead" times, of errors or additional costs. The data processed with ERP systems are much clearer and more transparent and provide support in substantiating the decision-making process.

After the implementation of ERP systems, a detailed analysis of the security of the data that will be stored in

the system database will be necessary, for a better redefinition or a reorganization of the internal controls.

As a result of the continuous digitization of specific activities of accounting and auditing professionals through the implementation of ERP systems, we have identified in the literature (in selected articles) that future generations of professional accountants and auditors will need in addition to traditional knowledge of accounting, finance or audit and IT knowledge, but also social skills to be able to provide consulting in the field of accounting or auditing.

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