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Digital transformation and its impact on the accounting and auditing profession in Algeria

A field study of a sample of accounting professionals in southeastern Algeria 2024

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Abstract:
This study aims to identify the extent of the impact of digital transformation on the accounting and auditing professions in Algeria. To achieve this, we adopted the descriptive approach in the theoretical aspect, and the field study in the applied aspect. After reviewing the various theoretical aspects of digital transformation and its impact on the reality of the accounting and auditing profession in Algeria, the field study came by relying on the questionnaire as a study tool and applying it to the study community consisting of certified accounting offices and accountants in the southeast of Algeria. We used digital transformation, as the results of the field study concluded that there is an impact of digital transformation on the accounting and auditing profession through the verification of the study hypotheses. Our study recommended the need to work on providing the necessary training and qualification and strengthening the digital infrastructure for its important role in knowledge management and its relationship to accounting information technology, which has brought about a major transformation in the accounting and auditing professions.
Keywords: Auditing - Accounting - Digital Transformation
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Introduction

The world is witnessing rapid and sustainable technological developments that fundamentally affect various economic and social fields. Among these fields, the accounting and auditing profession occupies an important place due to its pivotal role in achieving transparency and credibility in financial and administrative operations. In this context, digital transformation represents a qualitative shift that reshapes the practices of this profession through the adoption of modern technologies such as artificial intelligence, big data analysis, and blockchain technology.

In Algeria, institutions have begun to realize the importance of digital transformation and its impact on improving the efficiency of accounting and auditing operations. However, this process faces many challenges related to digital infrastructure, training and qualification, as well as legal and regulatory requirements. Therefore, it is necessary to study the impact of digital transformation on the accounting and auditing profession in Algeria to understand the extent to which institutions respond to these changes and to identify the opportunities and challenges they face.

This study comes at a time when the need to develop accounting and auditing practices to keep pace with digital transformations is increasing, which contributes to improving the quality of financial reports and enhancing confidence in the financial system. We hope that this study will

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provide valuable contributions that help Algerian institutions adopt digital technologies effectively and achieve maximum benefit from them.

1. Main Problem

The accounting and auditing professions in Algeria face great challenges in adapting to modern technologies and improving work efficiency and quality due to digital transformation. Pressure is increasing on institutions to adopt digital transformation to keep pace with international standards and enhance transparency and accuracy in financial reports. However, this transformation faces several obstacles, including lack of technical training and qualification, weak digital infrastructure, and others. In this topic, we raised the following problem: **What is the reality of the accounting and auditing profession under digital transformation?**

2. Sub-questions

To answer this problem, the following sub-questions can be raised:

- Is there an impact between technological development of financial and accounting information and the accounting and auditing profession in Algeria?
- Is there an impact between the reality of electronic and digital developments on the accounting and auditing profession in Algeria?

3. Study Hypotheses

In order to address the problem of this study, the following hypotheses were formulated:

- There is an impact between the technological development of financial and accounting information and the accounting and auditing profession in Algeria as a result of the noticeable reflections and changes in the methods and practices of the profession due to technological progress.
- There is a statistically significant impact between the reality of electronic and digital developments on the accounting and auditing profession in Algeria among the study sample at the significance level (0.05).

4. Objectives of the Study

The study aims to analyze the impact of digital transformation on the accounting and auditing profession in Algeria by reviewing the concepts of digital transformation and its components, and assessing how these technologies affect efficiency and accuracy in accounting and auditing operations. The research also includes a field study based on a questionnaire directed to accountants and auditors in Algeria in order to collect and analyze data to reach results that contribute to understanding the current reality and future trends of this profession under digital transformation.

5. Previous Studies

5.1. Sarah Williams' study entitled *"The Role of Artificial Intelligence in Reshaping the Accounting and Auditing Profession"*, International Journal of Accounting Technology, Issue 6, 2021. This study aimed to examine the impact of artificial intelligence (AI) on accounting and auditing practices globally, highlighting the challenges and opportunities of a financial accounting system that aligns with international accounting standards. The study concluded that AI has great potential in completing routine tasks, improving accuracy, and providing valuable insights to accountants and auditors, with concerns about job loss and ethical considerations.

5.2. Emma Smith's study entitled *"Digital Transformation and Its Effects on Audit Quality: Evidence from Global Audit Firms"*, Journal of Accounting Research, Vol. 20, 2021. This study aimed to examine the effects of digital transformation on audit quality using evidence from global audit firms, focusing on the adoption of digital tools and their impact on audit processes. The study concluded that firms adopting digital transformation tend to achieve higher audit

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quality through improved efficiency, accuracy, and risk assessment capabilities, although challenges related to data security and technology integration remain.

5.3. Anna Johnson's study entitled *"The Impact of Digitalization on Audit Fees: Evidence from International Audit Markets"*, Journal of Accounting Economics, Issue 15, 2020. This study aimed to analyze the impact of digitalization on audit fees using data from international audit markets and examined how adopting digital tools affects audit pricing strategies. The study concluded that firms investing in digital tools and technologies tend to charge higher audit fees, reflecting the perceived value of enhanced audit quality and efficiency. However, the extent of this effect varies across different audit markets and client characteristics.

5.4. David Brown's study entitled *"Digital Transformation and Internal Auditing: A Global Perspective"*, Journal of Internal Auditing, Vol. 25, 2019. This study aimed to explore the extent of the impact of digital transformation on internal auditing practices worldwide, highlighting emerging trends, challenges, and opportunities. The study concluded that transforming internal audit processes through digitization—such as data analytics, continuous monitoring, and risk assessment—has implications for internal audit professionals, including the need to develop skills and embrace innovation.

5.5. Fatima Abdul Karim's study entitled *"The Transformation of Accounting and Auditing in the Age of Digital Technology: A Case Study in the Middle East"*, Journal of Accounting Analysis, Issue 3, 2019. This study aimed to analyze the transformation of accounting and auditing in the Middle East under the influence of digital transformation, focusing on potential challenges and opportunities. The study concluded that there are significant changes in accounting and auditing processes due to digital transformation, with increasing challenges in skill development and cybersecurity assurance.

6. Theoretical Framework of the Study:

The Impact of Digital Transformation on the Accounting and Auditing Profession

Digital transformation technologies are currently automating routine accounting activities, which has led some to predict the extinction of the accounting profession. According to a study conducted by Borne and Frey and published in *The Economist* in 2014, accountants and auditors rank second—after telemarketing—in terms of risk of disappearance. Even if this did not seem alarming enough at the time, it has evolved with the increase in automation. In an article titled *The Top 5 Jobs Robots Will Take First*, the researcher indicated that accounting jobs would be fully automated. Others, while less pessimistic, predicted an erosion of traditional accounting jobs alongside increased demand for skilled accountants to perform modern accounting functions shaped by digital transformation technologies. However, these technologies cannot replace emotional intelligence and critical thinking skills in the foreseeable future.

Although some researchers tend to exaggerate the magnitude and pace of change, this does not mean that change will not occur. Indeed, some accountants may lose their jobs if they fail to properly upgrade their skills. The changes resulting from increased adoption of digital transformation technologies require not just reactive responses, but proactive engagement by accountants in driving technological improvements. As the profession transitions into its new generation, its strength will increase. It is anticipated that the accountants of the future will focus more on big-picture company strategies, managerial planning, research and development, and advanced analytics, rather than data entry, bookkeeping, and routine accounting procedures. This undoubtedly requires accountants to equip themselves with awareness and knowledge about skill development, as well as collaboration with professionals in other fields (Fais & Al-Qabri, 2020).

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If accountants are able to respond to these technologies and developments with flexibility and agility, such technologies will work with them rather than replace them, creating endless opportunities. These opportunities revolve around how the role of the accountant evolves, whether in practice or in business. Today's accountants therefore have the chance to move away from routine, repetitive tasks and break free from the narrow scope of slow, manual operations. Digital transformation technologies will allow them to transition toward more advisory and analytical roles, while undoubtedly leading to further automation of accounting processes that once required intensive human effort.

It is also worth noting that some statistics predict that the accounting profession will grow by 11% over the next ten years, representing an increase of more than 142,000 new jobs in accounting and auditing.

In general, the impact of digital transformation technologies on accounting can be summarized in the following points (Fais & Al-Qabri, 2020):

- Shifting focus away from data entry toward analysis, interpretation, and value addition in accounting outputs.
- Providing real-time information.
- Increasing integration between financial and non-financial data.
- Offering a variety of accounting applications that deliver innovative solutions to many current problems.
- Enabling the generation of all management-required accounting information through online programs with a single click or a few simple commands.
- Disrupting the traditional relationship between company and client by empowering both accountants and non-accountants to access financial and accounting information online—for example, using Google to find answers to questions once directed to an accountant.

As for auditing in the context of digital transformation, it will benefit from data-gathering tools such as sensors, embedded computers, and software units that collect information about the entire company and its stakeholders (suppliers, customers, etc.) through networks that provide data almost in real time. Auditing relies on data analysis techniques to build models that monitor production, detect machine errors, reduce costs, and facilitate decision-making. The approach of "audit by exception" will be adopted to highlight critical issues in automated auditing. In the near future, auditing will also rely on a global digital visual representation reflecting all operations in an interconnected manner, enabling analysis not only of financial but also material and non-financial aspects. This new approach is expected to restore balance to auditing, strengthen its protective role, and be applicable across various types of audits (external, internal, specialized).

Digital transformation technologies will increasingly automate information reporting, sharing, and auditing without human intervention. The concept of "audit without manual intervention" implies that manual auditing steps add no value and merely represent unnecessary friction that should be eliminated.

The main elements of digital transformation affecting auditing can be highlighted as follows (Fais & Al-Qabri, 2020):

6.1. Internet of Things (IoT)

IoT technology uses advanced sensors embedded in products, devices, and objects surrounding humans. These digital enhancers transmit real-time data about how humans interact with their environments and make decisions. Such data improves the design and production of tools and technologies used in daily life. IoT provides a shared language and integration among data,

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software, and applications that enable researchers and innovators to conduct analyses for developing specialized fields (Awad, 2018). In short, while the internet of yesterday connected people, today's internet connects things.

Currently, many companies rely on their accounting and ERP systems, with sufficient understanding of their mechanisms and adequate internal controls to manage risks. However, in an IoT-driven future, data will come from countless sources. What happens if thousands or millions of devices connected to accounting systems start transmitting corrupted data or making poor automatic decisions? Are clients prepared for such risks?

Integrating IoT into accounting information systems will bring accounting closer to information technology, strengthening ties between both professions and fostering collaboration to design smoother workflows. IoT also simplifies asset and inventory management through "smart shelves" and "smart warehouses," maintaining updated virtual records and enabling easy stock tracking without manual counts. It also facilitates monitoring geographically dispersed assets, reducing theft risks and production stoppages, thereby improving the preparation of financial statements. Moreover, IoT enhances cost management, forecasting, and decision-making by providing real-time insights that improve resource planning, accounting systems, and managerial/cost accounting (Fais & Al-Qabri, 2020).

For auditing, IoT will transform practices dramatically. Audit firms will receive real-time client data automatically instead of physically collecting it, enabling continuous audits anytime. This supports broader, more comprehensive risk assessments and faster resolution of issues. IoT will also help auditors find solutions and create added value in their services. Future auditing will go beyond verifying numbers to understanding client data sources and collection processes, shifting from retrospective to real-time auditing. Nevertheless, firms must warn clients about associated risks such as data breaches, identity theft, and cybersecurity challenges (Fais & Al-Qabri, 2020).

6.2. Big Data

The term *Big Data* refers to an enormous set of complex and highly intertwined data such as Twitter tweets, text messages, post likes, status shares, video shares, stock trading volumes, weather reports, and other data published on social media platforms. Such data is difficult to process and manage with a single database tool or traditional methods of data processing, as it is growing at an extremely rapid pace and will continue to do so. Every day, more and more tools are added for data input, such as smartphones, space sensors, GPS locators, social security comparators, traffic and road data collectors, as well as input systems for students, employees, and workers worldwide.

Big Data has significant implications for accounting since it allows access to new types of data. Video, audio, and text information can contribute to improving financial reporting, enhancing transparency for stakeholders, and developing accounting standards. Some scholars have emphasized the importance of recognizing the role of social media in providing Big Data, and the need for analyzing and interacting with it, alongside developing accounting methods (Mohamed Youssef, 2018).

Several studies have concluded that Big Data:

- Enables accountants to handle data that is variable and sometimes contradictory, whether structured or unstructured;
- Helps in making predictions and comparing alternatives;
- Creates difficulty in identifying data useful for internal accounting purposes amidst such massive volumes;
- Increases transparency and integrity of financial reports;

- Supports environmental and social disclosure, as well as sustainability and governance reporting;
- Generates the need to develop new accounting measurement methods suited to the Big Data environment;
- Positively affects the qualitative characteristics of accounting information;
- Can be used in valuing company assets;
- Sometimes complicates accounting estimates.

In the field of auditing, some studies concluded that Big Data contributes to (Mohamed Youssef, 2018):

- Expanding the framework and scope of the auditing process;
- Shifting the concept of audit evidence from paper and electronic documents to *digital audit evidence* obtained from RFID technology, GPS, and the Internet of Things (IoT);
- Intertwining company management, control systems, and continuous auditing functions;
- Increasing the volume of audit evidence and broadening its scope, enabling new analyses to summarize, interpret, and utilize it;
- Transforming the audit system into multiple layered levels according to the complexity of data and, accordingly, audit procedures;
- Enhancing the effectiveness of analytical auditing;
- Altering issues such as risk types, new exceptional cases, fraud concepts, and critical operational issues;
- Bringing fundamental changes in audit timing, cost structures, auditor competencies, and auditing standards;
- Allowing more accurate risk assessment;
- Improving the detection of material errors and fraud indicators;
- Providing large volumes of data that were previously unavailable or difficult to identify.

6.3. Blockchain

Blockchain technology is regarded as the **largest distributed digital ledger**, based on the idea of decentralization and openness. It enables the transfer of ownership (not just copies) in real time without requiring a third-party intermediary, while ensuring a high degree of security and encryption of transactions to resist fraud and manipulation. Every participant worldwide shares this ledger, each maintaining an up-to-date copy. This makes altering or hacking the chain extremely difficult, and transactions recorded cannot be retroactively changed. This immutability is what makes Blockchain technology widely accepted (Khalifa, 2018).

Numerous studies in accounting have examined the impact of Blockchain technology (BC), and a review of scholars' views reveals that it:

- Will eliminate traditional methods used in invoicing, documenting, processing, and recording transactions;
- Will revolutionize accounting ledgers, as it is a decentralized, immutable, and encrypted public ledger, providing a more transparent framework;
- Will render current accounting skills outdated and create high demand for IT skills;
- Will handle record-keeping with high transparency and minimal error, freeing accountants' time and effort to focus on strategic areas, thereby adding value to their expertise (Raed & Barakat, 2018);
- Will compel accountants to expand their use of automation and increase demand for analytical skills;

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- Will further automate traditional accounting functions and shift accounting from the double-entry system to automated *triple-entry accounting*, challenging established accounting postulates;
- Will change how transactions are recorded, as entries will be made in a shared ledger across all companies on the chain, creating more interconnected accounting systems;
- Will increase the reliability of accounting information;
- Will revolutionize financial reporting.

For auditing, Blockchain provides immutable records in which accounting policies and estimates can be permanently embedded. This reduces management opportunism and deliberate interference in internal and external control systems and earnings management, thereby supporting auditing objectives. It also simplifies and enhances the auditor's work, enabling immediate auditing after transactions. In other words, Blockchain allows traditional auditing to occur just one day after financial statements are prepared, reducing seasonality and reinforcing continuous auditing.

Some studies indicate that auditing will become less costly compared to today's high expenses due to lower sampling costs and a change in pricing structures (currently based on client size). However, others suggest that audits will become more complex, requiring verification of **codes and smart contracts** written in programming languages to ensure they are secure and behave as intended.

6.4. Robotics

Many people imagine a robot as a human-like machine in appearance and behavior. While this is true of many robots, the concept is much broader. A robot is a programmable machine capable of automatically performing a series of complex tasks, controllable via embedded or external devices, and potentially capable of autonomous behavior. In this modern sense, the robot's external shape is irrelevant. In the Fourth Industrial Revolution era, robots can change their form as needed (Al-Hami, 2018).

In accounting, studies suggest that if robots are integrated into companies, they can handle manual, repetitive, paper-based accounting tasks, as well as automatically verify financial data. This transforms traditional accounting roles into advisory functions. Robotics will not eliminate accountants but will reduce their workload. Other studies note that robotics can improve the quality and accuracy of accounting work, save time, but also increase professional responsibilities.

When integrated into accounting systems, robots can:

- Collect financial data from emails and spreadsheets and post it into the general ledger;
- Route invoices through PDFs;
- Support data entry into accounting systems and monitor receivables;
- Conduct inventory counts and valuations;
- Collect closing data and gather information from departments across the company to help in operational and financial planning;
- Compare, process, and extract key data from account statements;
- Prepare reconciliation memos;
- Distribute internal financial reports to company units.

For auditing, robotics enhances reliability, streamlines audit trails, improves audit quality, and increases security. With proper training, robots can perform auditing tasks error-free, producing high-quality outputs since robotic work strictly follows predefined scripts. Theoretically, robotic auditing is simpler than human auditing.

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However, auditors (internal and external) must be able to govern robotics use in accounting information systems and distinguish between automatable and non-automatable processes. This depends on factors such as inherent risk, process complexity, and variation in decision outcomes. By analyzing these, auditors can maximize cost and efficiency benefits. Yet, auditors must recognize that robots cannot always perform needed tasks, cannot think like humans, may suffer from coding errors, and may require reprogramming due to business model or operational changes.

Synthesis

From the above, it can be concluded that Fourth Industrial Revolution technologies influencing accounting and auditing—when integrated—will combine:

- Data collection and processing by robotics,
- Data transmission through IoT,
- Decentralized, encrypted Blockchain systems,

to generate unprecedented volumes of digital Big Data. Cybersecurity then analyzes, alerts, and shares information to reduce digital risks (Banqa, 2019).

7. Applied Framework of the Study

7.1. Survey on Digital Transformation and Its Impact on Accounting and Auditing

In this study, a survey on digital transformation and its impact on the accounting and auditing profession was employed as a descriptive tool for data collection. Its aim was to explore the role of digital transformation in the Algerian accounting and auditing profession. The survey was designed by students, reviewed by academic experts, and revised accordingly.

It consists of **three dimensions**:

- **Dimension 1:** Accounting and auditing profession in Algeria (10 items, numbered 01–10).
- **Dimension 2:** Technological development of financial and accounting information (10 items, numbered 11–20).
- **Dimension 3:** Electronic and digital developments in the accounting and auditing profession (10 items, numbered 21–30).

Scoring Method:

A five-point Likert scale was used to measure responses, assigning values from 1 to 5.

Table 1: Likert Scale Values

Response	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Score	1	2	3	4	5

Table 2: Mean Score Ranges and Satisfaction Levels

Direction	General Trend	Weighted Mean Range	Satisfaction Level
1	Strongly Disagree	1 – <1.8	Very Weak
2	Disagree	1.80 – <2.60	Weak
3	Neutral	2.60 – <3.40	Moderate
4	Agree	3.40 – <4.20	High
5	Strongly Agree	4.20 – 5.00	Very High

Application of the Survey:

The questionnaire was distributed to **60 accountants and auditors in Southeastern Algeria**. All were collected (100% response rate), and all were valid for analysis. A simple random sampling method was applied.

Table No. (2): The arithmetic mean value and satisfaction levels of the study sample.

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Direction Number	General Direction	Weighted Mean	Satisfaction Level
First Direction	Strongly Disagree	From 1 to less than 1.8	Very Weak
Second Direction	Disagree	From 1.80 to less than 2.60	Weak
Third Direction	Neutral	From 2.60 to less than 3.40	Average
Fourth Direction	Agree	From 3.40 to less than 4.20	High
Fifth Direction	Strongly Agree	From 4.20 to 5.00	Very High

Source: Prepared by the researchers based on the Likert scale

• Questionnaire Application:

The questionnaire was distributed to (60) accountants and auditors in southeastern Algeria, all of which were retrieved at a rate of (100%), and all were valid for analysis, where the simple random method was adopted in selecting the sample.

2.7. Psychometric properties of the questionnaire:

A study of the psychometric properties of the questionnaire on digital transformation and its impact on the accounting and auditing profession was conducted on accountants and auditors in the southeast. Below are the results of reliability and validity as revealed by this research.

1.2.7. Expert Validity:

To ensure the validity of the designed questionnaire on digital transformation and its impact on the accounting and auditing profession among accountants and auditors in southeastern Algeria, we presented its preliminary version to a group of professors teaching at the Faculty of Economic, Commercial, and Management Sciences, in order to obtain their observations and opinions on the tool regarding:

- The extent to which the dimension measures the variable;
- The extent to which the items measure the dimension;
- The number of items in each dimension;
- The appropriateness of the answer alternatives for the items;
- Requesting an alternative in case of disagreement.

After retrieving the evaluation forms, we corrected some items and also added a set of items to certain dimensions, and in the end, we obtained the questionnaire on the role of digital transformation in the accounting and auditing profession among accountants and auditors in the southeast.

2.2.7. Construct Validity (Internal Consistency):

The validity of the questionnaire was also calculated through internal consistency (construct validity), by calculating Pearson's linear correlation coefficient between the questionnaire and the scores of the axes and their items, as well as between the axes and the total score of the scale. The results were as shown in the following tables:

Table No. (3): Correlation coefficient between the axis of the accounting and auditing profession in Algeria and its items

Items	Correlation Coefficient	Significance Level
01	0.478	Significant at 0.01
02	0.250	Not Significant
03	0.383	Significant at 0.05
04	0.576	Significant at 0.01
05	0.269	Not Significant
06	0.478	Significant at 0.01

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Items	Correlation Coefficient	Significance Level
07	0.541	
08	0.716	
09	0.294	Not Significant
10	0.575	Significant at 0.01

It is clear from this table that the correlation coefficient between each item and its axis is significant at both levels (0.01) and (0.05), except for items (02, 05, 09). That is, the number of significant items is (07/10) of the total representing the axis of the accounting and auditing profession in Algeria, which is evidence of the existence of internal consistency in this axis.

Table No. (4): Correlation coefficient between the axis of technological development of financial and accounting information and its items

Items	Correlation Coefficient	Significance Level
11	0.505	Significant at 0.01
12	0.589	
13	0.794	
14	0.610	
15	0.681	
16	0.575	
17	0.702	
18	0.668	
19	0.533	
20	0.671	

It is clear from this table that the correlation coefficient between each item and its axis is significant at the level (0.01). That is, the number of significant items is (10/10) of the total representing the axis of technological development of financial and accounting information, which is evidence of the existence of internal consistency of this axis.

Table No. (5): Correlation coefficient between the axis of the reality of electronic and digital developments and its items

Items	Correlation Coefficient	Significance Level
21	0.749	Significant at 0.01
22	0.739	
23	0.705	
24	0.723	
25	0.262	Not Significant
26	0.664	Significant at 0.01
27	0.802	
28	0.684	
29	0.647	

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Items	Correlation Coefficient	Significance Level
30	0.614	

It is clear from this table that the correlation coefficient between each item and its axis is significant at the level (0.01), except for (25). That is, the number of significant items is (09/10) of the total representing the axis of the reality of electronic and digital developments, which is evidence of the existence of internal consistency of this axis.

Table No. (6): Correlation coefficient between the axes and the questionnaire as a whole

Axes	Correlation Coefficient	Significance Level
Axis of the accounting and auditing profession in Algeria	0.718	Significant at 0.01
Axis of technological development of financial and accounting information	0.943	
Axis of the reality of electronic and digital developments	0.913	

It is clear from this table that the correlation coefficient between each axis and the questionnaire as a whole is significant at the level (0.01). That is, the number of significant axes is (03/03) of the total representing the questionnaire on the role of digital transformation in the accounting and auditing profession among accountants and auditors in southeastern Algeria, which is evidence of the existence of internal consistency of the questionnaire.

3.2.7. Calculation of Cronbach's Alpha Reliability Coefficient:

In this part, we will attempt to show the reliability and credibility of the questionnaire for application to the subject matter by calculating Cronbach's alpha coefficient. The higher the alpha coefficient above (0.600), the more reliable the questionnaire is for the study.

Table No. (7): Cronbach's Alpha Coefficient for the study tool

Axes of the Questionnaire	Cronbach's Alpha
Axis of the accounting and auditing profession in Algeria	0.954
Axis of technological development of financial and accounting information	0.859
Axis of the reality of electronic and digital developments	0.888
The questionnaire as a whole	0.913

Source: Prepared by the researchers based on SPSS.V22 outputs

It was found that the reliability coefficient (Cronbach's alpha) equals (0.913) for the entire questionnaire, which is greater than the coefficient (0.60), indicating the reliability of the study tool. This means that there is stability in the axes, and therefore it can be said that the questionnaire is characterized by reliability.

8. Statistical Methods Used in the Study:

The Statistical Package for the Social Sciences (SPSS 22) was used to code and process the data, and the following statistical methods were adopted:

1.8. Descriptive methods:

- Frequencies and percentages: to identify in detail the personal and functional characteristics of the study sample members;

- Arithmetic mean: to determine the attitudes of the study members toward each dimension and the scale;
- Standard deviation: to determine the extent of deviation of the study members' responses toward each statement or dimension.

2.8. Inferential methods:

- Cronbach's Alpha reliability coefficient: to test the reliability of the data collection tool used in measuring the variables included in the study.
- Pearson correlation coefficient: to confirm validity and prove that the scale measures what it was designed to measure, and to determine the relationship and correlation between the study variables.
- Regression coefficient: a predictive analysis that analyzes the relationship between the dependent variable and the independent variable within the dataset included in the study.

9. Questionnaire Results Analysis

1.9. Personal Data

- By Gender:

Table No. (8): Distribution of the study sample according to the gender variable.

Gender	Frequencies	Percentage %
Male	56	93
Female	04	07
Total	60	100%

Source: Prepared by the researchers based on SPSS 22 output

According to Seniority:

Table (9): Distribution of the study sample according to the seniority variable

Seniority	Frequency	Percentage %
5 years or less	20	34
6 to 12 years	32	53
13 years or more	08	13
Total	60	100

Source: Prepared by the researchers based on SPSS v.22 outputs.

From the table and the above figure illustrating the distribution of the study sample by seniority, we observe that the majority of the respondents belong to the category of 6 to 12 years, totaling 32 individuals (53%). This is followed by the category of 5 years or less with 20 individuals (34%), and finally, the category of 13 years or more with 8 individuals (13%).

2.9. Results of Testing the Study Hypotheses

After analyzing the preliminary questionnaire data, this section tests the validity of the study hypotheses to determine their acceptance or rejection, using appropriate statistical methods.

Presentation and Analysis of Sample Responses to the Questionnaire on the Role of Digital Transformation in the Accounting and Auditing Profession for Accountants and Bookkeepers in the Southeast

Table (10): Arithmetic mean, standard deviation, and overall trend of the questionnaire on the role of digital transformation in the accounting and auditing profession

Axes	Mean	Std. Dev.	Overall Trend	Rank
Accounting and auditing profession in Algeria	3.966	0.361	Agree	1

Axes	Mean	Std. Dev.	Overall Trend	Rank
Technological development of financial and accounting information	3.803	0.516	Agree	3
Reality of electronic and digital developments	3.843	0.541	Agree	2
Overall Questionnaire Result	3.871	0.413	Agree	

From the above table, we note that the overall mean of the questionnaire on the role of digital transformation in the accounting and auditing profession reached **3.871**, with a standard deviation of **0.413**. The overall trend falls within the range (3.40–4.20), indicating "Agree." The highest mean was observed in the axis *Accounting and auditing profession in Algeria* (3.966; SD = 0.361), followed by *Reality of electronic and digital developments* (3.843; SD = 0.541), while the lowest was in *Technological development of financial and accounting information* (3.803; SD = 0.516).

A detailed breakdown of responses to each axis is as follows:

(a) Accounting and Auditing Profession in Algeria

Table (11): Arithmetic mean, standard deviation, and overall trend of the first axis

Items	Mean	Std. Dev.	Trend	Rank
Digital transformation increases the efficiency of accountants and auditors in Algeria.	3.63	0.964	Agree	8
The use of modern accounting software has become essential in the accounting and auditing profession.	4.60	0.724	Strongly Agree	1
Training on digital tools is an integral part of developing the accounting profession.	4.27	0.640	Strongly Agree	2
Digital systems help reduce accounting errors.	4.03	0.718	Agree	5
Digital transformation requires changes in the regulatory framework of the accounting and auditing profession.	3.43	0.898	Agree	10
Accountants need advanced analytical skills to deal with big data.	4.07	0.691	Agree	4
Electronic accounting systems enhance transparency in financial reporting.	3.87	0.629	Agree	7
Digital transformation opens new horizons for research in accounting and auditing.	4.00	0.947	Agree	6
Cybersecurity has become a major challenge in the accounting profession.	3.50	0.682	Agree	9
Digital technology allows faster and more effective exchange of financial information.	4.27	0.907	Strongly Agree	3
Axis Average	3.966	0.361	Agree	

The axis average reached **3.966** (SD = 0.361), falling within the "Agree" range (3.40–4.20). The highest item mean was for *The use of modern accounting software has become essential* (4.60; SD = 0.724), while the lowest was for *Digital transformation requires changes in the regulatory framework* (3.43; SD = 0.898).

(b) Technological Development of Financial and Accounting Information

Table (12): Arithmetic mean, standard deviation, and overall trend of the second axis

Items	Mean	Std. Dev.	Trend	Rank
Cloud-based accounting systems provide greater data access flexibility.	3.83	0.531	Agree	5
Artificial intelligence can enhance the accuracy of financial forecasts.	3.60	1.070	Agree	8
Financial data integration facilitates strategic decision-making.	4.00	1.017	Agree	3
Accounting software helps improve financial risk management.	3.67	0.758	Agree	7
Advanced analytics contribute to better understanding of financial performance.	3.83	0.834	Agree	6
Blockchain can revolutionize accounting systems.	3.40	0.621	Agree	10
Automation reduces the need for manual accounting operations.	3.57	0.774	Agree	9
Digital tools help improve cash flow management.	3.97	0.809	Agree	4
New technologies facilitate auditing and review processes.	4.13	0.900	Agree	1
Accounting information systems enhance cooperation among financial departments.	4.03	0.765	Agree	2
Axis Average	3.803	0.516	Agree	

The axis average was **3.803** (SD = 0.516), again in the "Agree" range. The highest item mean was for *New technologies facilitate auditing and review* (4.13; SD = 0.900), while the lowest was for *Blockchain can revolutionize accounting systems* (3.40; SD = 0.621).

(c) Reality of Electronic and Digital Developments

Table (13): Arithmetic mean, standard deviation, and overall trend of the third axis

Items	Mean	Std. Dev.	Trend	Rank
Digital transformation affects demand for traditional skills in accounting.	3.77	0.858	Agree	9
Digital tools strengthen the role of auditors.	4.07	0.785	Agree	2
New technologies require accountants to constantly update their knowledge.	4.20	0.925	Strongly Agree	1
Digital systems speed up auditing processes.	4.07	0.785	Agree	2
Digital transformation increases the complexity of accounting and auditing tasks.	2.63	0.964	Neutral	10
Electronic tools improve the quality of accounting services.	3.93	0.583	Agree	6
Digital technology helps combat financial fraud.	3.83	0.986	Agree	8
Digital systems provide new opportunities for education and professional training.	3.90	0.607	Agree	7
Digital transformation requires major investments in technological infrastructure.	4.03	0.999	Agree	4

Items	Mean	Std. Dev.	Trend	Rank
Digital tools enhance communication between accountants and clients.	4.00	0.788	Agree	5
Axis Average	3.843	0.541	Agree	

The axis average reached **3.843** (SD = 0.541), in the "Agree" range. The highest mean was for *New technologies require accountants to update knowledge* (4.20; SD = 0.925), while the lowest was for *Digital transformation increases task complexity* (2.63; SD = 0.964).

3.9. Results of Testing the Study Hypotheses

After analyzing the preliminary data obtained from the questionnaire, this section tests the validity of the study's hypotheses by examining the extent to which they are accepted or rejected, using appropriate statistical methods.

3.9.1. Results of Testing the General Hypothesis

General Hypothesis Statement:

There is a statistically significant effect between digital transformation and the accounting and auditing profession in Algeria among the study sample at the significance level (0.05).

Formulated statistically as follows:

- **Null Hypothesis (H0):** There is no statistically significant effect between digital transformation and the accounting and auditing profession in Algeria among the study sample at the significance level (0.05).
- **Alternative Hypothesis (H1):** There is a statistically significant effect between digital transformation and the accounting and auditing profession in Algeria among the study sample at the significance level (0.05).

Table 14: Summary of Simple Linear Regression for the General Hypothesis

	Regression Coefficient (B)	T-Test	Sig.	R^2	Correlation Coefficient (R)	ANOVA (F)	Sig.
Constant (B0)	2.543	5.740	0.00	0.273	0.522	10.498	0.00
Independent Variable (B1)	0.372	3.240	0.00				

Source: Prepared by researchers based on SPSS V22 outputs

From the above table, the regression coefficient value reached **(B = 0.372)**, which is significant at the **0.01 level**. The coefficient of determination was **(R^2 = 0.273)**, indicating that the independent variable (digital transformation) affects the dependent variable (the accounting and auditing profession), according to the responses of the study sample. The variance value was **(F = 10.498)**, which is also significant at the **0.01 level**.

Based on the simple linear regression model, in order to predict the future relationship between the two variables, and to estimate the extent to which the accounting and auditing profession will improve if institutions increase their attention to digital transformation or implement improvements, the following equation is used:

$Y=b0+b1\times XY = b0 + b1 \times XY=b0+b1\times X$

Improvement in the accounting and auditing profession = (2.543) + (0.372 × Digital Transformation)

- **Decision on the general hypothesis:** We accept the alternative hypothesis (H1) and reject the null hypothesis (H0). This means that there is a statistically significant effect

between digital transformation and the accounting and auditing profession in Algeria among the study sample at the significance level (0.05).

3.9.2. Results of Testing the First Sub-Hypothesis

Hypothesis Statement:

There is a statistically significant effect between technological development of financial and accounting information and the accounting and auditing profession in Algeria among the study sample at the significance level (0.05).

Statistically formulated as follows:

- **H0:** There is no statistically significant effect between technological development of financial and accounting information and the accounting and auditing profession in Algeria among the study sample at the significance level (0.05).
- **H1:** There is a statistically significant effect between technological development of financial and accounting information and the accounting and auditing profession in Algeria among the study sample at the significance level (0.05).

Table 15: Summary of Simple Linear Regression for the First Sub-Hypothesis

	Regression Coefficient (B)	**T-Test**	**Sig.**	**R^2**	**R**	**ANOVA (F)**	**Sig.**
Constant (B0)	2.483	5.903	0.00	0.311	0.558	12.667	0.00
Independent Variable (B1)	0.390	3.559	0.00				

Source: Prepared by researchers based on SPSS V22 outputs

The regression coefficient value reached **(B = 0.390)**, significant at **0.01**, while the coefficient of determination was **(R^2 = 0.311)**. This indicates that the independent variable (technological development of financial and accounting information) affects the dependent variable (the accounting and auditing profession), according to the responses of the study sample. The variance value was **(F = 12.667)**, significant at **0.01**.

The regression model used for prediction is:

Y=b0+b1×XY = b0 + b1 \times XY=b0+b1×X

Improvement in the accounting and auditing profession = (2.483) + (0.390 × Technological Development of Financial and Accounting Information)

- **Decision on the first sub-hypothesis:** We accept the alternative hypothesis (H1) and reject the null hypothesis (H0). This means that there is a statistically significant effect between technological development of financial and accounting information and the accounting and auditing profession in Algeria at the significance level (0.05).

3.9.3. Results of Testing the Second Sub-Hypothesis

Hypothesis Statement:

There is a statistically significant effect between the reality of electronic and digital developments and the accounting and auditing profession in Algeria among the study sample at the significance level (0.05).

Statistically formulated as follows:

- **H0:** There is no statistically significant effect between the reality of electronic and digital developments and the accounting and auditing profession in Algeria among the study sample at the significance level (0.05).
- **H1:** There is a statistically significant effect between the reality of electronic and digital developments and the accounting and auditing profession in Algeria among the study sample at the significance level (0.05).

Table 16: Summary of Simple Linear Regression for the Second Sub-Hypothesis

	Regression Coefficient (B)	**T-Test**	**Sig.**	**R^2**	**R**	**ANOVA (F)**	**Sig.**
Constant (B0)	2.828	6.454	0.00	0.198	0.444	6.891	0.01
Independent Variable (B1)	0.296	2.625	0.01				

Source: Prepared by researchers based on SPSS V22 outputs

The regression coefficient value reached **(B = 0.296)**, significant at **0.05**. The coefficient of determination was **(R^2 = 0.198)**, showing that the independent variable (reality of electronic and digital developments) affects the dependent variable (the accounting and auditing profession). The variance value was **(F = 6.891)**, significant at **0.05**.

The regression model is:

Y=b0+b1×XY = b0 + b1 \times XY=b0+b1×X

Improvement in the accounting and auditing profession = (2.828) + (0.296 × Electronic and Digital Developments)

- **Decision on the second sub-hypothesis:** We accept the alternative hypothesis (H1) and reject the null hypothesis (H0). This indicates that there is a statistically significant effect between electronic and digital developments and the accounting and auditing profession in Algeria at the significance level (0.05).

10. Conclusion

This study aimed to investigate the impact of digital transformation on the accounting and auditing profession in Algeria, seeking to answer the research problem: *"What is the state of the accounting and auditing profession under digital transformation?"* This was approached through both theoretical analysis and an empirical field study involving practitioners in southeastern Algeria.

1. Hypothesis Testing Results:

- The **first hypothesis** (effect of technological development of financial and accounting information) was accepted. The findings highlight that cloud-based accounting systems, artificial intelligence, financial data integration, accounting software, advanced analytics, blockchain, automation, digital tools, and accounting information systems positively contribute to improving financial forecasting accuracy, enhancing risk management, facilitating auditing processes, strengthening interdepartmental collaboration, and supporting strategic decision-making.
- The **second hypothesis** (effect of electronic and digital developments) was accepted. Results show that digital transformation and new digital tools reinforce the role of accountants and auditors, require continuous knowledge updates, accelerate audit processes, and improve the quality of accounting services.

2. Study Results:

- **Theoretical findings:**
  - Digital transformation significantly improves efficiency in accounting and auditing by saving time and reducing human error.
  - Digital technologies such as AI and big data analytics enhance financial reporting accuracy and provide more transparent and reliable information.
  - Digital transformation requires accountants and auditors to develop new skills and stay updated with modern technologies.
- **Field study findings:**

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- Respondents indicated that digital transformation enhances work efficiency and reduces human errors.
- There is an urgent need to develop digital infrastructure and provide specialized training programs.
- Organizational and regulatory resistance was noted, requiring updates to align with technological progress.
- Larger enterprises show higher adoption of digital technologies compared to small and medium-sized enterprises.

11. Appendices

Questionnaire Axes

Axis 1: The Accounting and Auditing Profession in Algeria

(Statements measured on a 5-point Likert scale from "Strongly Disagree" to "Strongly Agree")

1. Digital transformation increases the efficiency of accountants and auditors in Algeria.
2. Using modern accounting software has become essential in the accounting and auditing profession.
3. Training in digital tools is an integral part of developing the profession.
4. Digital systems reduce accounting errors.
5. Digital transformation requires changes in the regulatory framework of the profession.
6. Accountants need advanced analytical skills to handle big data.
7. Electronic accounting systems enhance transparency in financial reporting.
8. Digital transformation opens new research horizons in accounting and auditing.
9. Cybersecurity has become a major challenge in the profession.
10. Digital technology enables faster and more effective financial information exchange.

Axis 2: Technological Development of Financial and Accounting Information

(Statements on the same 5-point Likert scale)

1. Cloud-based accounting systems provide greater flexibility in data access.
2. Artificial intelligence can enhance financial forecasting accuracy.
3. Financial data integration facilitates strategic decision-making.
4. Accounting software helps improve financial risk management.
5. Advanced analytics contribute to better understanding of financial performance.
6. Blockchain can revolutionize accounting systems.
7. Automation reduces reliance on manual accounting processes.
8. Digital tools help improve cash flow management.
9. New technologies facilitate auditing and review processes.
10. Accounting information systems strengthen collaboration between financial departments.

Axis 3: The Reality of Electronic and Digital Developments in the Profession

(Statements on the same 5-point Likert scale)

1. Digital transformation affects the demand for traditional accounting skills.
2. Digital tools enhance the role of auditors.
3. New technologies require accountants to continuously update their knowledge.
4. Digital systems accelerate auditing processes.
5. Digital transformation increases the complexity of accounting and auditing tasks.
6. Electronic tools improve the quality of accounting services.
7. Digital technology helps combat financial fraud.
8. Digital systems provide new opportunities for education and professional training.
9. Digital transformation requires major investments in technological infrastructure.

10. Digital tools strengthen communication between accountants and clients.

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