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Impact of Using Artificial Intelligence Applications on the Accounting and Auditing Profession–An Exploratory Study from the LCPAs' Perspective

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Abstract

Nowadays, Artificial Intelligence (AI) technology is developing very rapidly and is impacting every domain in the world from a simple transformation of humans to simulated human life. AI is the ability of a computer or computer-powered system to process information and produce results the way humans do in learning, solving problems and decision-making. Practitioners of accounting and auditing have taken part in the trend of automation, which would enhance efficacy of their work. This paper aims at determining the impact of artificial intelligence applications on the accounting and auditing profession and the challenges AI is facing from the Lebanese Certified Public Accountants' (LCPAs) point of view. The researchers used the quantitative method conducting a questionnaire as a tool for the exploratory study, and it was distributed to 350 LCPA's, of which 337 were retrieved and were valid for testing. The study rendered some important findings, mostly that using AI applications improve the level of reliability of financial data. Using AI applications contributes in finding solutions for complex accounting and auditing process. However, there are some challenges that face implementing AI application.

Keywords

artificial intelligence, accounting and auditing, automation, audit risks, financial data

1. Introduction

In the middle of the twentieth century, scientists began to explore a new approach to building intelligent devices. Based on discoveries in neuroscience and the development of cybernetics through the invention of the computer, they developed devices that can match the human computational thinking process (Pew, 2018). The term "artificial intelligence" was first used in 1956 by John McCarthy, who held a two-month workshop at Dartmouth College, which brought together researchers interested in artificial neural networks. Although it did not make any break-through, it brought together the founders of artificial intelligence, in addition to contributing to laying the basis for future research. It is worth noting that this workshop opened the way for a concentrated wave of research in the field, as artificial intelligence research centers were established, such as Carnegie Mellon and the Massachusetts Institute of

Technology whose main concern was creating systems and finding solutions to problems, such as the Global Positioning System (GPS).

The world today is living in the era of digitization. The use of digital technology is increasing by day in all aspects of life, especially in the business sector as economic units today find themselves facing the inevitability of keeping pace with this change and the necessity of digital transformation of their businesses (IMF, 2021a).

This transformation will certainly affect management methods in economic units, one of which is accounting tools that are already affected, and will continue be affected by this transformation in the near future. However, the degree of this influence depends on the extent of their response to the digital transformation (Djevojić et al., 2021). Economic units today have a need for more accurate and rapid information using digital technologies, which requires the development and adoption of accounting tools in a way that is adequate and compatible with such developments and changes (OECD, 2019; Oloyede et al., 2023).

Recently, there has been a number of developments that have led to the emergence of the ICT environment, which is a combination of information and communication technology that utilize various tools (UNDP, 2001). These developments have undoubtedly become part of the global economic entity, which is characterized by the use of information and technology. As a result, economic units are now trying to do their work in a way that relies on modern technology tools, having been previously doing their work manually (OECD, 2020). The development of business intelligence and large-scale computer use have led to a very relevant response from most businesses to these developments, as the pace of technological developments has become prevalent (IMF, 2018; UNCTAD, 2021).

Given the certainty of adopting these technological applications in the accounting and auditing profession, it has responded to these developments in a relative manner. In the near future, it is expected that the response to these developments will increase significantly, especially with regard to the use of artificial intelligence applications, which represents one of the modern computer sciences that search for advanced methods and design of intelligent systems that have similar characteristics to human intelligence (OECD, 2021; Qin et al., 2023).

Moreover, the accounting and auditing profession is facing a major challenge which is the necessity of providing tools that enable it to tackle the modern technical environment and the emergence of digital auditing, especially since this technology supports accountants' and auditors' work in many aspects. These include establishing the knowledge base of the profession, improving outputs, rationalizing and directing daily procedures, improving the quality of services, reducing audit risks, and supporting the profitability of accounting and auditing offices (Quinto, 2022; Kroon et al., 2021).

To accompany this massive transformation into the digital world, accountants and auditors need intelligent tools that would help them perform tasks required quickly and accurately; thus, AI applications were put into service in this profession.

This paper commences with a review of relevant literature, then the researchers explore through the conceptual framework of the study in which the impact of using AI applications on the accounting and auditing profession and the challenges facing integrating AI in the profession are detailed. Next, the procedures and methods used in the empirical study are presented followed by the results and findings.

2. Literature Review

The use of Artificial Intelligence (AI) applications has had a significant impact on the accounting and auditing profession (Korinek et al., 2021). AI technology has revolutionized the way tasks are performed, which enable auditors and accountants to streamline their work processes and enhance their effectiveness (OECD, 2021; Fedyk et al., 2022). One of the main domains where AI has left a substantial effect is data analysis. With the great amounts of data that accountants and auditors handle, AI algorithms can analyze and process this data quickly and accurately, abolishing the need for manual entry of data and reducing the risk of errors that usually occur. Applications that are powered by AI can perform intricate calculations and identify patterns in the data, enabling accountants and auditors to make decisions based on reliable and precise information (OECD, 2021).

In addition, AI-powered applications have renovated the way accountants prepared financial statements. Conventionally, accountants used to spend a significant time span to manually reconcile accounts and to prepare financial statements (Das, 2021). However, by introducing AI-powered applications, these complex tasks are automated, which helps the accountants save valuable time and allows them to focus on more strategic activities. AI-powered software can extract financial data from numerous sources, collect data, and produce financial statements with slight human intervention (ICAP, 2023). By integrating AI applications in the accounting and auditing profession, accounting firms have experienced several advantages such as improved efficiency, greater accuracy, and higher decision-making capabilities (Rosi & Mahyuni, 2021).

Additionally, integrating evolving technologies such as cloud accounting, expert systems, machine learning, and data mining has further enhanced the value that AI brings to the profession. These technologies enable accounting firms to efficiently process and analyze vast volumes of structured and unstructured data, providing valuable insights into the financial and non-financial performance of companies (IMF, 2021b). As a result, accounting companies are now thinking seriously about integrating AI into their audit assignments to perform their tasks effectively. AI also has the possibility to develop various aspects of the accounting industry, including, but not limited to operations and services, logistical activities, security data, sales, marketing, customer service, data analysis, and research and development (Ghanoum & Alaba, 2020; Das, 2021).

Furthermore, the capacity of AI applications to deal with large bulks of data and produce meaningful perceptions allows users, especially auditors, to have a deeper comprehension of financial and non-financial performance (OECD, 2021). This, in turn, allows auditors to provide more comprehensive insights to their clients and other people of interest. In a study conducted in Jordan, Hashem & Alqatamin (2021) confirmed the effect of AI applications on the accounting and auditing profession in IT companies from the auditors' point of view. The study emphasized that all AI applications have proven to be critical for the accounting profession since they equip auditors with the essential tools and processes to accomplish the audit process accurately and clearly, in a way that helps decision-makers effectively. Also, Liburd, et al. (2020) assured that AI applications can effectively direct auditors towards high-risk areas, given that accounting and auditing companies' heavy reliance on artificial intelligence applications carries with it a set of assumptions, the most important of which are: the accuracy of these applications, and that artificial intelligence systems will always act within desired constraints. In addition, deviation from the desired restrictions will be detectable and correctable.

Consequently, the quality of audit reports will improve significantly. Also, AI applications allows for more effective and well-organized data analysis, which allows auditors to identify patterns, detect anomalies, and conduct comprehensive risk assessments (OECD, 2021; Rahmani et al., 2021). Additionally, AI applications in this profession enhance the overall efficiency of the audit process. By empowering AI applications, accountants and auditors can restructure their plans, improve the speed and accuracy of data processing, and reduce manual effort (Quinto, 2022). Furthermore, the accounting and auditing profession involves reviewing financial records to guarantee compliance with procedures and detect any potential error or fraud. By using machine learning algorithms, AI systems can detect unusual patterns or anomalies in financial transactions, improving the accuracy and effectiveness of audits. This technology also enables auditors to identify potential risks and areas of concern that may have gone unnoticed in manual audits (IMF, 2021b).

However, while using AI applications conveys copious benefits, it can also present some challenges for the profession. One main concern is the possible displacement of jobs. As AI technology becomes more complex, there is fear that certain tasks which accountants and auditors perform may become entirely automated, leading them to lose their jobs or to a shift in its requirements (IMF, 2021b). It may also cause problems with data accuracy and integrity. AI algorithms are only as accurate as the data that is fed into them; inaccurate, unbalanced, or inconsistent data could affect how well an AI system processes information. As a result, reports and financial statements may contain inaccuracies that are not discovered until it is too late to make remedies. Additionally, due to changes in market conditions, there are no guarantees regarding the accuracy of forecasts made by machine learning models, which makes interpretation challenging for accountants who lack analytic skills (OECD, 2021; IMF, 2021b).

Since AI applications have access to a lot of private data, there are privacy and security concerns. Such access opens the door wide for identity theft, data breaches, and other immoral behaviors. Numerous scientists have expressed their worry about the challenges posed by AI because numerous AI indicators, which experts previously believed as being decades away, have already been reached. Several AI experts believe that artificial intelligence will be on-level with human intelligence before the year 2060 (Siau & Wang, 2018). Also, there are deep concerns that AI powered by machine learning applications will be out of human control and may become the principal system of intelligence and decision-making on earth (Wang & Siau, 2019). A lack of transparency in the process may also come from AI-powered automation (OECD, 2021) since complicated algorithms are frequently utilized in place of conventional norms and standards, which may be challenging for human auditors to comprehend or confirm. In some circumstances, judgments performed automatically by AI algorithms can lead to moral predicaments without the awareness of people or authority officials (Zhang et al., 2023; Sullivan & Wamba, 2022).

The impact of using AI applications on the profession has been enormous. From data analysis and preparing financial statements to task automation and auditing, AI has improved the way accountants and auditors work. Since there are many challenges and risks to be discussed, the numerous advantages of AI in boosting decision-making capabilities, precision, and effectiveness are not to be overlooked. As AI technology thrives, it is critical for professionals to adopt AI in their businesses and empower its capabilities to help the accounting and auditing profession grow. As such, the current study explores the impact of using AI applications on the accounting and auditing profession, and it is the first of its kind to be done in Lebanon, as far as the researchers know.

3. Research Problem and Hypothesis

Based on the literature review, it becomes obvious that there a lot of benefits and merits of using AI applications in accounting and auditing. However, most previous research papers are not local and have been conducted in developed countries**.** Accordingly, this study came to bridge the gap by searching for answers to the following two questions:

What are the impacts of applying artificial intelligence on the accounting and auditing profession?

What are the challenges of using AI applications in accounting and auditing?

Based on the research questions and the previous studies, the researchers have the following hypotheses:

H_1: LCPAs are aware of the merits that AI applications supply to the accounting and auditing profession.

H_2: Integrating AI applications in the accounting and auditing profession has many positive impacts from the LCPAs' point of view.

H_3: There are many Challenges of using AI applications in the accounting and auditing profession from the LCPAs' point of view.

4. Conceptual Framework

4.1 Artificial Intelligence (AI) Defined

According to Britannica Encyclopedia (2023), Marvin Lee Minsky defined AI as the construction of computer programs that engage in tasks that are completed satisfactorily by humans, because they require high-level mental processes such as: perceptual learning, memory organization, and critical thinking. AI is a computing technology that demonstrates a type of human intelligence and scopes over many inter-connected technologies that comprise machine learning, speech recognition, data mining, natural language processing, sentiment analysis and image recognition (EY, 2018). Copeland and Proudfoot (1993) defined AI as the process of developing computer systems so that they are capable of performing tasks that usually require human intelligence such as speech recognition, decision-making, visual perception, and translation. As such, the researcher concludes that artificial intelligence is a science whose primary goal is to make computers and other machines acquire the quality of intelligence. It has the ability to do things that were until recently limited to humans, such as thinking, teaching, and communication.

Recently, AI has developed as an altering element spanning multi-industries which includes accounting and audit. Incorporating AI in the accounting and auditing profession has resulted in substantial improvements and opened new horizons for practitioners. AI applications are restructuring the accounting and auditing profession through automation of routine processes, improving risk assessment, and boosting data analysis abilities.

The Big Four accounting firms (Deloitte, PwC, EY & KPMG), in addition to other leading institutions across the world have been pioneers in integrating AI applications into their businesses and have invested millions of dollars in this technology to raise their abilities to offer their clients high-quality audits at cost efficient prices. As such, Deloitte uses AI applications to evaluate invoices, leases and contracts; meanwhile KPMG is using deep learning systems to analyze credit files of banks for mortgage portfolios (Sun & Vasarhelyi, 2017). Also, PwC uses a machine learning tool called Halo to examine journal entries and detect problems (Dickey et al., 2019).

4.2 Impact of AI Applications on Accounting and Auditing

Integration of AI in the accounting and auditing profession has resulted in great advancements for the profession, such as making decision-making capabilities as perfect as can be, streamlining processes, and eliminating monotonous and repetitive tasks. Contemporary operations of AI technology in accounting and financial reporting span over a large range of processes and tasks to be performed, which offers substantial benefits in effectiveness and strategic perceptiveness. Some researchers (Sreseli, 2023; Khan et al., 2022; Minkkinen et al., 2022; Quinto, 2022; Elmegaard et al., 2022; Hasan, 2022; Fedyk et al., 2022; Liburd et al, 2020; Seethamraju & Hecimovic, 2020; Kroon et al., 2021; Ghanoum & Alaba, 2020; Deloitte, 2019; Griffin, 2019) shed light on some of these operations which include:

- Automated Data entry and Reconciliation: AI applications can value fiscal information extracted from various resources.
- Financial Data Analysis: AI applications can detect and analyze patterns and allow analysis of data.
- Preparation and Analysis of Financial Statements: AI restructures the process of financial statements preparation by automating and categorizing data collection, and generating reports.
- Reduced Accounting Costs: By using AI systems, routine tasks in accounting and auditing become more accurate.
- Cash Flow Management: AI technology can help manage and monitor cash flows.
- Tax Compliance: AI applications can assist in ensuring compliance with tax regulations.
- Risk Management and Auditing: AI systems can evaluate financial risks when historical data, market trends, and risk factors are analyzed.
- Fraud Detection and Risk Assessment: AI systems can also recognize patterns which indicate fraudulent activities easily when analyzing financial transactions or other related information.
- Continuous Auditing: Usually, audits are done periodically; however, AI made it possible to have continuous auditing.
- Predictive Analysis: Predictive analysis supported by AI allows businesses to predict possible audit problems and compliance difficulties.
- Enhanced Testing: AI systems are able to perform complex testing measures fast and with great precision.
- Document Classification: AI organizes and classifies financial documents, which facilitates managing records and compliance to regulations and standards.
- Credit Scoring: Credit scoring algorithms based on AI help credit companies assess the creditworthiness of individuals and businesses.
- Natural Language Processing (NLP): AI tools based on NLP can extract visions from financial reports, news, and documents.
- Chatbots for Customer Support: Due to the growing number of exchanges on social media, chatbots for customer service were developed.
- Investment Analysis: AI applications can analyze data from the financial market to offer investment recommendations for users.
- Regulatory Compliance: AI applications can ensure compliance of the business with financial regulations and requirements necessary for reporting.

4.3 Disadvantages and Challenges of Using AI Applications in Auditing and Accounting

A great many people have already tried or heard how using AI technology has revolutionized modern, every-day life. However, AI has its disadvantages and challenges as well.

As for the disadvantages of implementing AI in the auditing and accounting profession, several researchers (Kumar Doshi et al., 2020; Mohammad et al., 2020; Chukwuani & Egiyi, 2020; Luo et al., 2018; Kokina & Davenport, 2017; Makridakis, 2017) have pointed out various downsides. These include:

- the huge cost of building, updating and maintaining systems,
- prolonged decision processes as a result of exploring more alternatives,
- lacking the abilities of human beings to practice reasoning, exercise professional skepticism and exert professional judgment,
- increasing technological unemployment,
- frequent changes in law and regulations also require updating the AI system, and
- creating possible income inequality and reduction in the need of labor,
- risk of AI tools being transferred to competitors and the possibility of those being used against the auditor,
- higher requirements for accountants since they need to acquire computer knowledge in addition to accounting,
- significant decrease in the demand for low-level accountants,
- accounting work is done by computers through networks, so it is inevitable to have an impact on the financial data security,
- algorithms being exploitative, deceptive, internally biased or containing human logic errors or imbedded human biases,
- access to a large volume or quality of required data for processing, and
- ending human authority and approaching technological singularity.

5. Procedures and Methods

5.1 Population and Sample Selection

All Certified Public Accountants (CPAs) in Beirut (632) and Mount Lebanon Governance (1080) constitute the population of this study (1712) since they are directly involved in the accounting and auditing profession. A random sample of 350 LCPAs was selected and the questionnaire was distributed among them, 337 of which have responded and all of the responses were valid for testing and analysis.

The demographic data of the sample is shown in Table 1.

Table 1. The Participants' Distribution According to Personal Data

Variable	Frequency	Percentage
Education		
Bachelor	194	57.6%
Master	131	38.8%
PhD	12	2.5%
Total	**337**	**100%**
Major		
Accounting	244	72.4%
Economics	14	4.1%
Business administration	51	15.1%
Banking and Finance	28	8.4%
Total	**337**	**100%**
Years of experience		
0-5 years	27	8.1%
5-10 years	49	14.5%
10-15 years	166	49.2%
15 years and above	95	28.2%
Total	**337**	**100%**

It is obvious from Table 1 that 57.6% of the sample has Bachelor's degrees. In addition, 38.8% have Masters' degrees and 2.5% have PhDs. The majority of the sample 72.4% have majored accounting which is the appropriate major for them to understand the items of the questionnaire and supply reliable responses for the topic of the current study. It is also evident that 77.4% of the sample have an experience of more than 10 years in practicing the profession. This gives more reliability to their responses.

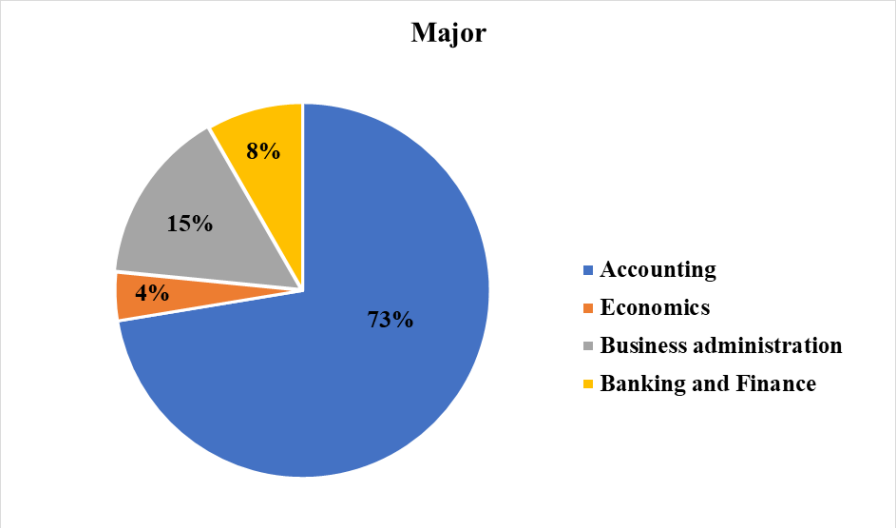

Figure 1. Distribution of the Sample according to Years of Experience

5.2 Instrumentation

The researchers constructed a questionnaire based on the five-point Likert Style and has 33 items categorized into three main domains, with responses coded as follows:

Table 2. Correct Tool of the Study

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

Table No. (3) provides the scale categories and the scope of each:

Table 3. Five-point Likert Scale

	Approval Level				
	Very low	**Low**	**Moderate**	**High**	**Very high**
Mean	< 1.8	1.8-2.59	2.6-3.39	3.4-4.19	> 4.2
Relative Weight	< 36%	36%-51.9%	52%-67.9%	68%-83.9%	> 84%

5.3 Data Analysis and Discussion

Table 4 shows the correlation coefficient among all the items of the questionnaire, and the results came as follows:

Table 4. Correlation between the First Section Items and the Section Overall Degree

	Item	Pearson Correlation	P-value
1	AI systems aim to direct computers to perform tasks that humans can do.	0.482**	0.000
2	AI systems perform tasks at high speed.	0.421**	0.000
3	AI systems provide highly accurate results.	0.471**	0.000
4	AI systems save time and effort.	0.744**	0.000
5	AI systems contribute to managing operations and tasks with more advanced and intelligent mechanisms.	0.727**	0.000
6	AI systems can tackle difficult and complex tasks in the absence of necessary information.	0.493**	0.000
7	AI systems can understand inputs and provide outputs that meet the users' needs with high efficiency.	0.691**	0.000
8	AI systems can use past experiences and employ them in future situations.	0.692**	0.000
9	AI systems visualize, create, understand and perceive visual matters.	0.714**	0.000

Note. Correlation is significant at (P) < 0.01.

Table 5. Correlation between the Second Section Items and the Section Overall Degree

	Item	Pearson Correlation	P-value
1	Using AI applications can reduce the burden of data-entry and minimize the risk of errors.	0.537**	0.000
2	AI applications can detect and analyze patterns and allow analysis of data.	0.615**	0.000
3	AI restructures the process of financial statements preparation by automating and categorizing data collection, and generating reports.	0.808**	0.000
4	Using AI applications increases the level of reliability of financial data.	0.638**	0.000
5	AI can perform detailed financial analysis.	0.764**	0.000
6	By using AI systems, routine tasks in accounting and auditing become more accurate.	0.792**	0.000
7	AI technology can help manage and monitor cash flows.	0.660**	0.000
8	Using AI applications leads to consistency with accounting and auditing standards, which supports the governance role of auditing.	0.751**	0.000
9	AI systems can evaluate financial risks.	0.774**	0.000
10	AI systems can recognize patterns which indicate fraudulent activities easily when analyzing financial transactions or other related information.	0.801**	0.000
11	Predictive analysis supported by AI allows businesses to predict possible audit problems and compliance difficulties.	0.629**	0.000
12	AI systems are able to perform complex testing measures fast and with great precision.	0.609**	0.000
13	Using AI applications improves the quality of control procedures on electronic transactions and files used in the facility under audit.	0.574**	0.000
14	AI made it possible to have continuous auditing.	0.531**	0.000
15	Using AI applications contributes to the suitability and adequacy of collecting audit evidence.	0.638**	0.000
16	AI applications can assist in ensuring compliance with tax regulations.	0.801**	0.000

Note. Correlation is significant at (P) < 0.01.

Table 6. Correlation between the Third Section Items and the Section Overall Degree

	Item	Pearson Correlation	P-value
1	AI lacks the human characteristic of creativity.	0.547**	0.000
2	AI is still a relatively new field, and there is still much to comprehend about its work.	0.638**	0.000
3	AI implementation requires high costs.	0.747**	0.000
4	Over-dependence on AI technologies results in laziness and skill loss in humans.	0.554**	0.000
5	AI applications have an impact on the financial data security.	0.547**	0.000
6	AI may end human authority and technology will rule.	0.774**	0.000
7	AI systems do not take ethical issues into consideration.	0.638**	0.000
8	There is lack of professionals with experience in accounting and AI.	0.785**	0.000

Tables 4, 5 and 6 show the correlation coefficients between the items and the overall degree of the domains. It is clear that all items of the questionnaire are significant at the level 0.01, where the correlation coefficient for the items is positive and ranged from 0.421 to 0.808, which signifies the internal consistency among the items of the study tool.

Cronbach's Alpha is shown in Table 6:

Table 7. Reliability of the Questionnaire Using Cronbach's Alpha

Domain	Cronbach's Alpha	
	Number of Items	Cronbach's Alpha
First Domain	9	0.874
Second Domain	16	0.813
Third Domain	8	0.886
Overall	**33**	**0.819**

It is clear from Table 7 that Cronbach's Alpha for all items is **0.819**. This indicates that there is reliability among the items of the questionnaire.

6. Testing the Hypotheses

6.1 The First Hypothesis

H_1: LCPAs are aware of the merits that AI applications supply to the accounting and auditing profession.

Table 8. Testing the First Hypothesis

	Item	Mean	S. D	T	P	Relative weight	Level of agreement	Rank
1	AI systems aim to direct computers to perform tasks that humans can do.	3.99	0.85	23.06	0.000	79.8%	High	3
2	AI systems perform tasks at high speed.	3.81	1.16	13.95	0.000	76.2%	High	7
3	AI systems provide highly accurate results.	3.94	0.97	19.25	0.000	78.8%	High	6
4	AI systems save time and effort.	4.02	1.01	20.25	0.000	80.4%	High	2
5	AI systems contribute to managing operations and tasks with more advanced and intelligent mechanisms.	3.97	0.94	20.46	0.000	79.4%	High	4
6	AI systems can tackle difficult and complex tasks in the absence of necessary information.	3.95	0.97	19.44	0.000	79%	High	5
7	AI systems can understand inputs and provide outputs that meet the users' needs with high efficiency.	4.08	0.99	21.53	0.000	81.6%	High	1
8	AI systems can use past experiences and employ them in future situations.	3.97	0.94	20.46	0.000	79.4%	High	4
9	AI systems visualize, create, understand and perceive visual matters.	4.08	0.99	21.61	0.000	81.6%	High	1
	Overall	**3.97**	**0.60**	**33.81**	**0.000**	**79.5%**	**High**	

Note. Significant at (P) < 0.05.

The mean of the samples' responses to all the items of the first domain as related to the study is **3.97** and a relative weight of **79.5%**. Also, the value of the calculated "T" test is **33.81**, which is bigger than the value of "T"-tabulated at the significance 0.05. This means that there is a rise of statistical significance to the neutral level in the average responses of the sample; as a result, the first hypothesis of the study which states "**LCPAs are aware of the merits that AI applications supply to the accounting and auditing profession**" is accepted.

6.2 The Second Hypothesis

H_2: Integrating AI applications in the accounting and auditing profession has many positive impacts from the LCPAs' point of view.

Table 9. Testing the Second Hypothesis

	Item	Mean	S. D	T	P	Relative weight	Level of agreement	Rank
1	Using AI applications can reduce the burden of data-entry and minimize the risk of errors.	3.95	.800	21.28	0.000	78.9%	High	12
2	AI applications can detect and analyze patterns and allow analysis of data.	4.10	.790	25.01	0.000	82.0%	High	5
3	AI restructures the process of financial statements preparation by automating and categorizing data collection, and generating reports.	4.11	.720	27.83	0.000	82.3%	High	3
4	Using AI applications increases the level of reliability of financial data.	4.02	.851	21.46	0.000	80.3%	High	8
5	AI can perform detailed financial analysis.	3.93	.886	18.91	0.000	78.6%	High	13
6	By using AI systems, routine tasks in accounting and auditing become more accurate.	4.14	.832	24.62	0.000	82.8%	High	1
7	AI technology can help manage and monitor cash flows.	4.08	.735	26.42	0.000	81.6%	High	6
8	Using AI applications leads to consistency with accounting and auditing standards, which supports the governance role of auditing.	3.72	.983	13.19	0.000	74.4%	High	17
9	AI systems can evaluate financial risks.	4.08	.707	27.38	0.000	81.6%	High	6

10	AI systems can recognize patterns which indicate fraudulent activities easily when analyzing financial transactions or other related information.	4.13	.718	28.23	0.000	82.5%	High	2
11	Predictive analysis supported by AI allows businesses to predict possible audit problems and compliance difficulties.	3.96	.846	20.39	0.000	79.2%	High	11
12	AI systems are able to perform complex testing measures fast and with great precision.	4.10	.747	26.52	0.000	82.0%	High	5
13	Using AI applications improves the quality of control procedures on electronic transactions and files used in the facility under audit.	3.98	.851	20.80	0.000	79.7%	High	9
14	AI made it possible to have continuous auditing.	4.11	.764	26.14	0.000	82.2%	High	4
15	Using AI applications contributes to the suitability and adequacy of collecting audit evidence.	3.89	.908	17.66	0.000	77.8%	High	14
16	AI applications can assist in ensuring compliance with tax regulations.	4.04	.730	25.54	0.000	80.7%	High	7
	Overall	**4.02**	**.827**	**30.85**	**0.000**	**80.4%**	**High**	

Note. Significant at (P) < 0.05.

The mean of the sample's responses to items of the second domain as related to the study is **4.02** and a relative weight of **80.4%**. Additionally, the value of the calculated "T" test is **30.85**, which is greater than the value of tabulated "T" at the significance 0.05. This means that there is a rise of statistical significance to the neutral level in the average responses of the sample members; therefore, the second hypothesis of the study which states "**Applying artificial intelligence has many positive impacts on the accounting and auditing profession from the LCPAs' point of view**" is accepted.

6.3 The Third Hypothesis

H_3: There are many challenges of using AI applications in the accounting and auditing profession from the LCPAs' point of view.

Table 10. Testing the Third Hypothesis

Third Domain: Challenges of AI Applications on Accounting and Auditing Functions								
	Item	**Mean**	**S. D**	**T**	**P**	**Relative weight**	**Level of agreement**	**Rank**
1	AI lacks the human characteristic of creativity.	3.89	.908	17.66	0.000	77.8%	High	8
2	AI is still a relatively new field, and there is still much to comprehend about its work.	4.41	.612	26.99	0.000	88.1%	Very High	2
3	AI implementation requires high costs.	4.44	.541	31.33	0.000	88.8%	Very High	1
4	Over-dependence on AI technologies results in laziness and skill loss in humans.	4.03	.500	37.07	0.000	81.6%	High	5
5	AI applications have an impact on the financial data security.	4.09	.703	27.93	0.000	81.8%	High	4
6	AI may end human authority and technology will rule.	4.27	.534	27.89	0.000	85.4%	Very High	3
7	AI systems do not take ethical issues into consideration.	4.07	.767	25.10	0.000	81.4%	High	6
8	There is lack of professionals with experience in accounting and AI.	4.01	.731	24.74	0.000	81.1%	High	7
	Overall	**4.00**	**.519**	**34.72**	**0.000**	**79.2%**	**High**	

The mean of the sample's responses to items of the second domain as related to the study is **4.0** and a relative weight of **79.2%**. Additionally, the value of the calculated "T" test is **34.72**, which is higher than the value of tabulated "T" at the significance 0.05. This means that there is a rise of statistical significance to the neutral level in the average responses of the sample members; therefore, the second hypothesis of the study which states "**There are many challenges of using AI applications in the accounting and auditing profession from the LCPAs' point of view**" is accepted.

7. Conclusions, Discussion and Recommendations

In this paper, the researchers strive to find out the impact of using artificial intelligence applications on the accounting and auditing profession and the challenges that AI applications constitute on the accounting and auditing profession from the LCPAs' point of view. This is an important issue to practitioners since by integrating AI into accounting and auditing, there should be some critical changes in the profession. In the following discussion, the researchers pointed out the most essential ideas represented in the items of the questionnaire to analyze. This does not mean that the rest of the items are trivial or minor; however, the researchers focused their analysis on the items which the respondents believed to be more important than the rest.

It is evident from table 9 that the item which states "By using AI systems, routine tasks in accounting and auditing become more accurate" got the first rank according to the LCPA members. The researchers believe that this might be because businesses are able to use resources effectively and redirect their human force toward more strategic tasks that need critical thinking and decision-making. Thus, integrating AI into accounting and auditing results in reduced operational costs. This agrees with findings of Sreseli (2023), Khan et al. (2022), and Deloitte (2019). The item which states "AI systems can recognize patterns which indicate fraudulent activities easily" got second rank according to the LCPAs. This might be because these systems can detect doubtful transactions, probable irregularities or nonconformities with normal financial behavior, helping in detecting fraud early and preventing it. The most essential criteria to assessing risk include financial impact, impact on reputation, regulatory impact, and impact on people. This agrees with findings from Minkkinen et al. (2022) and Seethamraju & Hecimovic (2020). In addition, the item which states "AI restructures the process of financial statements preparation by automating and categorizing data collection, and generating reports" got third rank from the LCPAs' point of view. The researchers think that it is because it guarantees compliance with standards, enhances accuracy, and decreases time required for financial reporting. Detailed financial analysis is another task that AI can perform, creating perceptions on liquidity, financial ratios, profitability, and other performance indicators. This agrees with what Hasan (2022) and Kroon et al. (2021) reached in the studies they conducted. Moreover, the item which states "Using AI applications made it possible to have continuous auditing" came in fourth rank. There is no doubt that monitoring and analyzing financial data assure that it is reviewed continually and automatically using a real-time electronic system, which may reduce the need for audits that take a lot of time; in addition, it can boost transparency. This result has also been stated by Minkkinen et al. (2022) and Elmegaard et al. (2022). According to LCPAs, the item which states "AI applications can detect and analyze patterns and allow analysis of data" came in fifth rank. The researchers believe that this item gained its importance as AI applications would give accountants more perception from great amounts of financial data. AI can recognize correlations and variances, which provide valuable contribution for users of financial forecasting and decision-making processes. This agrees with the findings that Elmegaard et al. (2022) and Ghanoum & Alaba (2020) have reached. In addition, the item which states "AI systems are able to perform complex testing measures fast and with great precision" came in fifth rank as well. This might be as these systems minimize the time consumed in audits and boost the accuracy of testing, making sure that audits are more extensive and reliable. Furthermore, the item which states "AI technology can help manage and monitor cash flows" came in sixth rank from the LCPAs point of view. The researchers believe that it is because a business can base decisions on more precise information since AI systems are less likely to make errors than humans do. This agrees with

what Liburd et al. (2020) and Griffin (2019) have noted in their studies. Also, the items which state "AI systems can evaluate financial risks" came in sixth rank according to LCPAs. This would be done when historical data, market trends, and risk factors are analyzed. They provide innovative tools to recognize possible risks, perform relevant risk assessments, and restructure the audit process. This agrees with what Fedyk et al. (2022) and Griffin (2019) have found in their studies. Also, AI can augment internal controls and enhance accuracy of risk management performance and effectiveness. The item which states "AI applications can assist in ensuring compliance with tax regulations" also came in seventh rank. This might be as these AI-powered applications can be used to help perform preliminary tasks, such as data review, which would free the professional staff to practice their sound judgment and creativity against the information extracted as Quinto (2022) has found in his study. Finally, the item which states "Predictive analysis supported by AI allows businesses to predict possible audit problems and compliance difficulties" came in seventh rank based on the LCPAs' responses. It is because this method enables businesses to tackle issues before they become worse, which will reduce financial and governing risks. In addition, this tool can save users' time and effort by helping them find information fast.

Based on the above findings, the researchers conclude that AI has a significant impact on the accounting and auditing profession. However, there are some challenges resulting from integrating AI applications in the accounting and auditing profession, notably, that "AI implementation requires high costs". This is represented in the huge cost of building and updating and maintaining AI systems. This agrees with Doshi et al. (2020) and Luo et al. (2018), who reached similar results in their studies. In addition, the item which states "AI is still a relatively new field, and there is still much to comprehend about its work" came in second place according to Table 10, and as Fedyk et al. (2022) have found in their study. Furthermore, the item which states "AI may end human authority and technology will rule" came in third place as evident in Table 10, and as Deloitte (2019) have found in a study they conducted. This risk is noteworthy as many requirements for the accounting and auditing profession have been updated in many countries and freshly graduated accountants have a lot of trouble finding jobs accordingly. This agrees with the findings that Mohammad et al. (2020) and Luo et al. (2018) have reached in their studies.

8. Recommendations

Based on the findings of the study, the researchers recommend the following:

- The Lebanese Association of Certified Public Accountants (LACPA) should conduct workshops and training sessions for the members to have insight about AI systems and ways to use them as it increases awareness and perception within the members and prepare accountant and auditors to implement this technology in the tasks they have to perform.
- The necessity of issuing instructions and guidelines for accountants and auditors to use AI systems effectively, aiming at keeping pace with developments in general and at the level of the profession in particular.
- It is necessary for accounting and auditing firms to adopt modern technology systems, especially AI applications and to know how to maximize using them because it is inevitable to use them to continue in the market.
- It is essential that accountants and auditors are encouraged to use AI applications in preparing future visions and strategies related to the accounting and auditing profession.

- It is necessary for professional and educational institutes to annually update their academic curricula and training programs in order to enable accountants and auditors to move along digital transformation smoothly; otherwise, the accounting and auditing profession would not have its present value and importance the future.
- In light of the increasing use of modern technologies in accounting and auditing, the academic curricula should not only be limited to accounting knowledge, but also to changing the design of the curriculum in addition to the way it is taught and evaluated.

9. Limitations of the Study

The current study was restricted to the impact of AI applications on the accounting and auditing profession. It also tackled the challenges that face utilizing AI systems in the profession from the Lebanese Certified Public Accountants' point of view. Thus, the findings of this study may or may not apply in other fields of interest or in other countries as each industry is unique in its own way. Furthermore, the sample differs from one country to another and from one industry to another.

10. Prospects for Future Research

The researchers recommend the following research to be conducted in the future as they found a gap regarding them in the previous literature.

- The role of automating robotic process in preparing financial reports and filling out tax forms.
- The role of AI systems in increasing continuous improvement processes for businesses.
- The impact of applying artificial intelligence in reducing tax evasion.
- The impact of artificial intelligence on activating strategic cost management tools.

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