

**Effects of Using Artificial Intelligence on the Certified Public
Accountant Profession: Evidence from Istanbul Certified Public
Accountants**

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Abstract

Financial institutions' operations are being drastically altered by artificial intelligence (AI), which, as a result of operational efficiencies and savings of cost, is predicted to take over mundane jobs more and more. The field of AI has made great strides recently, especially in relation to the accounting industry, which has moved its focus from manual data entry using paper and pencil to automated data entry using computers and software. This research aims to study the level of awareness of the certified public accountants and their perceptions on the application of AI in the field of accounting in Istanbul. It also examines the significance of the effect of personal characteristics on the level of awareness and perceptions of members of Istanbul Chamber of Certified Public Accountants (Istanbul SerbestMuhasebeci Mali MüşavirlerOdası / ISMMMMO). In this study a deductive approach and a quantitative strategy were used. A questionnaire was shared with accountants working in Istanbul Chamber of Certified Public Accountants. 155 responses were gathered, statistical tests were conducted, and outcomes were obtained in keeping with the study's goals. In accordance with the results obtained using an independent sample t-test and ANOVA, it was discovered that accountants' individual traits, such as gender, age, education level, years of experience, and line of business, have little bearing on how aware they are of and how they perceive the usage of AI in the field of accounting. According to the study's findings, perceptions about the use of AI in accounting are supportive of its application in the industry. Accountants generally responded positively and optimistically.

Keywords: Accounting profession; artificial intelligence; certified public accountant; istanbul chamber of certified public accountants

INTRODUCTION

1.1 Overview

A method for teaching a computer, a robot, or a product to think, learn, and make decisions akin to those made by people is known as artificial intelligence (AI). AI has received a great deal of press in recent years owing to its several goals, including knowledge representation, planning, natural language processing, learning, reasoning, realization, and the ability to move and manipulate objects. AI is improving appreciations to deep learning algorithms and large data research, from Deep Blue to Watson to AlphaGo and DeepMind. Nevertheless, despite the fact that the idea of AI is not new, there have recently been many rumors and doubts about it and its potential impact. AI is a broad phrase that refers to any technique that is used to allow computers to mimic human intelligence (Stancheva-Todorova, 2018). The development of double-entry accounting, which was made more than 500 years ago, was the most recent advancement in accounting. Automation has also replaced the old methods of data input and bookkeeping. One of the sectors leading the 21st century automation revolution is accounting (Chukwuani et al., 2020).

1.2 Purpose of the study

The consequences of applying AI on the profession of certified public accountants as well as accounting profession are frequently overlooked topics, although previous study in this field has shed light on these impacts and the potential changes they may bring about. Firms, departments, regulators, instructors and authorities of accounting as well as other accounting stakeholders will all be impacted by AI and automation in general.

1.3 Significance of the Study

By demonstrating how AI is being used in the field of certified public accounting, this study has the potential to raise awareness among accounting professionals in Istanbul about the usage of AI and the value of being ready for impending changes in the industry. Because it will shed light on accountants' perceptions of the application of AI in the field of accounting, which is a crucial element in the profession's effective endorsement of AI, this study will be especially beneficial to accountants, professional accounting bodies, accounting regulators, accounting firms, accounting academicians, and any organization with a finance function.

1.4 Methodology

The quantitative methodology was employed. This was accomplished by using a questionnaire in google form shared through ISMMMO with CPAs in Istanbul. This research study used a between-group design, an independent samples T-test, and a one-way between-group ANOVA to learn more about participants' levels of awareness and perspectives about the usage of AI in the previously mentioned area of accounting. Literature review was conducted using several search engines including google scholar, research gate and science direct.

1.5 Structure of the Study

This research study is divided into five sections. An outline of the study is provided in the first section with purpose of the study and the importance of it, besides the limitation of the research, moreover, there will be an extensive discussion over the idea of AI and how it relates to accounting. The second part is about literature review that includes previous studies about effect of AI in accounting and their findings. The third part collectively talks about research methodology and provides the inner workings pertaining the approach to the hypothesis reached, on the contrary the fourth part includes the discussion of findings and method of collecting data. The fifth and final parts covers recommendations for additional research, and a conclusion to the research study.

1.6 Understanding AI

John McCarthy came up with the term "artificial intelligence" to describe a research area in computer science that aims to build a machine with intelligence that can carry out a variety of tasks (Yadav et al., 2017). Additionally, it is a research area that focuses on the technical know-how for creating intelligent software and computers, as well as the study of programming computers to carry out activities more effectively and precisely than people. The task automation stage of AI is likely to exist in the short- to medium-term future and is depicted by four cells in the upper part of Fig. 1. The context awareness applications depicted in the lower part of Fig. 1 (two cells) are only likely to be used in the long term due to the restrictions correlated with the current level of AI (if at all).

Cell 1: Numerical Data Controller

In Fig. 1, the first cell illustrates an area where AI excels: machine learning-based statistical analysis of numerical data. One common use of AI is the optimization of prices (Antonio, 2018). The strategies of pricing must achieve a balance between the two following conflicting objectives: keeping the price low enough to captivate customers and high enough to allow the business to turn a profit

Cell 2: Controller of Data

Businesses can better understand their customers' wants and deliver better customer service by analyzing. With the help of deep learning neural networks, several AI applications can evaluate non-numeric data (in some cases after converting it to numeric data).

Cell 3: Numerical Data Robot

The AI uses in the third cell are similar to those in cell 1, with the exception that they are embedded in robots. As a result, these AI uses are precisely defined as robots that are responsible for processing numerical data inputs.

Cell 4: Data Robot

The robotic form in this cell can process all forms of data, unlike cell 2 where it cannot (not just numeric data). The Lowe's LoweBot, for instance, can identify a product that a client is holding, check to see if it is in stock, and then follow the customer to the exact spot inside the store.

Cell 5: Data Virtuoso

For such AI, the word "virtuoso" sounds suitable. Jarvis has sophisticated data analysis capabilities that can look at various data kinds. Such AI might eventually appear, and it would have excellent customer choice prediction capabilities.

Cell 6: Robot Experts

A sophisticated AI might potentially be integrated into a mechanical form, like the AI Dorian from the television series *Almost Human* is an AI who can speak, read, and take the temperature of liquids. Like Jarvis, Dorian is capable of adjusting to several novel situations, and speaks many languages.

1.6.1 Examples of AI Applications

1.6.1.1 Expert System

A computer program known as an expert system employs AI techniques to simulate the judgments and actions of an individual or group with expertise and experience in a particular field. Frequently, expert systems are created to support human experts rather than to take their place. The ability of modest amounts of knowledge to enable intelligent decision-making, independently or in close collaboration with a human person, across a wide range of disciplines has been proved by thousands of such systems.

1.6.1.2 Neural Networks

According to Taghizadeh et al. neural networks are digital simulations of human brain neural structures that are artificially intelligent. To the contrary, electronic models of natural neural networks and models that deal with the many analytical modeling frequently employed by computer systems, which rely on the same pattern, learning and teaching mechanisms in neural networks mostly depend on experience (Chukwudi, 2018).

1.6.1.3 Robotics

Robotics is the branch of science and technology concerned with the conception, development, and application of robots as a kind of AI. As a result, early robotics initiatives were more concerned with mechanical engineering than with intelligent behavior. Nonetheless, new generations of robots are being developed that incorporate AI methods for various aspects of their behavior, such as perception, reasoning in each situation to determine the best course of action, planning (and dynamic replanning) of actions to achieve a predetermined goal, and along with others (Haton, 2006).

1.6.1.4 Fuzzy Logic

A technique for processing variables called fuzzy logic allows for the processing of multiple potential truth values through a single variable. Fuzzy logic attempts to answer problems utilizing an unclosed, erroneous range of data and heuristics that allows the generation of a variety of precise conclusions. Zadeh created a fuzzy set theory in order to better depict everyday concepts like the set of 'tall persons.' Fuzzy logic is categorized as a subdivision of AI because it is a type of AI software (Dingle, 2011).

1.6.1.5 Natural Language Processing

This broad phrase refers to a variety of activities such as automatic document indexing and retrieval, computer-aided translation, access to data bases or services, sentence interpretation and generation for man-machine dialog, and more. The important AI technological tool known as Natural Language Processing (Chukwudi, 2018), consequently, in order to process and communicate efficiently, the machine requires a comprehension of natural language

1.7 The Accounting Profession

In Türkiye, the progress of the profession of accounting existed since 1923, the year of the establishment of the new republic. Auditors were working within the government departments, and management accountants were employed by the government enterprises. The advanced system of the accounting profession was then imported and introduced in the new republic from the European countries. The source of the majority of advancements imported were from France and Germany that were then adapted to the accounting system within the government entities.

1.7.1 Certified Public Accountant

"Certified Public Accountant" is the official title given to all qualified accountants who were able to successfully pass the Uniform CPA Examination. In order to obtain the license for public attestation, auditing views on financial accounts, CPAs must additionally satisfy experience criteria and extra state educational requirements. Furthermore, state boards of accountancy issue CPAs their licenses. A small number of States count public accounting experience as a college degree, despite the fact that the vast majority of States require CPA candidates to have a college degree (Borisova & Bekhteneva, 2015). Furthermore, CPAs are required to follow an ethical conduct of a very high standards. The lack of moral character is one of the aspects that could be considered as an ethics violation which in turn will result in the loss of the License. The high standards of ethics set are one of the reasons why individuals might become hesitant to join the field and become CPA's (Res, 2022).

1.7.2 Istanbul Chamber of Certified Public Accountant (ISMMMO)

The certified public accounting law dated 13 June 1989, No. 3568, gave Turkish Accountants a new identity. Istanbul's accountants were grouped together under the name of ISMMMO, a chamber that has some of the greatest membership in Türkiye.

The main goals of the Chamber are to provide an organizational structure for all professional accountants, to support and promote the activities and interests of the accountancy profession, to protect the reputation of the profession and ensure that all of its members abide by the Code of Ethics, as well as to promote the members' ongoing professional development and keep them informed on matters pertaining to accounting, auditing, and other business-related topics. The number of CPAs in Türkiye are 113,554, and in Istanbul 45,773.

1.8 Current Applications of AI in Accounting

For a very long time, successful applications of AI used to the financial function; one example is Cisco's 2011 virtual closure process, which was able to prepare consolidated financial statements and balance the books throughout the year, at any time to support quick decision-making (Petkov, 2019). In the substantive test phase, duties including modifying depreciation and amortization calculations, keeping track of general ledger transactions, and analyzing loan agreements and contracts are typical. The main impact of AI, according to Kokina and Davenport, will be on audit jobs that were previously handled manually but are now automated (Kokina&Davenport, 2017). With the use of AI, auditors can broaden their scope beyond the financial statements and include information from other sources, such as news feeds, social media, and so on, with financial data. Despite the fact that it has been noted that having too much information at an auditor's disposal could lead to poor judgment, (Upkong et al., 2019).

1.8.1 The Application of AI in the Big Four

Newly developed financial robots by the Big Four accounting companies can independently recognize data, enter payments, and produce financial reports. It is anticipated that these financial robots would replace entry-level accounting clerks, enabling business managers without accounting expertise to make defensible judgments based on basic accounting data (Bullock, 2017).

•**Deloitte:**

Deloitte has created many AI-enabled processes during the last ten years. For instance, their system for document inspection automates the challenging and time-consuming process of evaluating contracts and retrieving all pertinent data. With the help of this technology, it is now possible to recover crucial information from documents like contracts, invoices, financial statements, and meeting minutes in as little as half the time (Faggella, 2020).

•**Price waterhouse Coopers (PwC):**

PwC offers a broad selection of sector- and industry-specific data and analytics solutions. For instance, PwC collects data, evaluates the status of each company's files, looks at sample balance sheets, and transforms data into tax bases using robotic process automation (RPA) technology. These methods simplify the process of creating and amending tax returns, submitting tax payments, and answering questions from related parties (PwC, 2017).

•**Ernst & Young (EY):**

EY has identified a number of industries as having the highest importance, including financial services, biological sciences, retail and consumer goods, health, electric and utilities, the public sector, and government. EY is committed to creating an industry solutions portfolio built on innovation and injection. EY is presently building a variety of assets, products, and accelerators powered by its big data platform for each of these key industries (Candela, 2018).

•**KPMG:**

The Global Expert Insight Center provides local teams with extra resources, and KPMG's core operations have a significant focus on data and analysis. In order to help clients with

specific data concerns including privacy, security, and forensics, within its member organizations, KPMG is actively extending the scope of its data and analytics service offerings. It is also expanding its present offerings into other markets. By combining its expertise in tax, advising, and audit with its digital investments, KPMG helps clients change their businesses by utilizing its value delivery strategy and trustworthy information (Zhang et al., 2020).

1.8.2 AI Adoption in Türkiye

The "Digital Türkiye" vision and Türkiye's "National Technology Move," two significant projects that were launched in recent years that seek to turn Türkiye into a digital nation, serve as the foundation for the publication of the country's AI National Strategy (Özdemir, 2021). In this context, Türkiye has declared that indigenization of essential technologies has become a crucial political goal in order to improve social welfare and simultaneously reinforce its national security, taking into account the most recent global economic and structural backdrop. It is further stated that as part of the "National Technology Move," Türkiye opposes the monopolization of scientific and technological advancements and seeks to strengthen its economic and technological independence while also enhancing its competitiveness globally and implementing practices and policies that will result in advancements in crucial technologies.

1.9 AI's Impact on Accountants

In light of the all the processes automation of accounting, intelligent decision-making, and sharing of accounting services on the one hand, and the significant replacement of procedural accounting basic work by accounting information systems on the other, the role of accounting personnel will change from being the basis, procedure, and repeatability of accounting work to more valuable and professional work. The number of accounting employees is projected to decline due to rising information and labor expenses, as well as the use of big data in areas like financial shared services centers; possibly the majority of entry-level accounting employees will go the way of the dinosaurs (Li & Zheng, 2018).

1.9.1 AI's Impact on Accounting in Major Areas

Reports state that automating these procedures is a financially viable replacement for some accounting operations, which are currently being replaced. AI will have an impact on a large number of employments in the paralegal industry, mortgage origination, and general accountancy services. Bank reconciliation, payroll, invoice classification, income tax preparation, inventory management, and other tasks that need data gathering and processing have long been automated; AI, on the other hand, takes this automation a step further (Shaffer *et al.*, 2020). By utilizing intelligent accounting technology in the age of AI, fundamental and the productivity of accounting work can be increased by automating repetitive tasks and deconstructing intricate accounting procedures. The caliber of accounting data can be enhanced using AI technology. Accounting data is the most important thing for businesses, and its quality is especially important. A key criterion for evaluating the quality of accounting information is whether it is timely and accurate.

1.9.2 Performance Enhancement

To assess the possibility for job displacement in the accounting industry due to the use of AI, Stancheva-Todorova contends that the actions of an accountant must be dissected. Some chores are simple to automate, while others are not. Accounting and auditing, according to Abdolmohammadi (1991), are a combination of structured and unstructured work, and while social and creative intelligence are vital, other tasks do not require such inventiveness. 400 audit jobs are described by the author, who contends that some of them are unstructured and rely on scant or confusing data, making them inappropriate for AI applications (Abdolmohammadi, 1991).

1.9.3 Improvement of Performance

Accounting professionals can greatly benefit from the abilities of intelligent systems. By giving employees access to better and more affordable data, enhancing the depth of their data analysis, and freeing up their time to focus on higher-value tasks, the ability of AI technology to support business decision-making processes can be improved by supplying fresh information (Stancheva-Todorova, 2018). With the assistance of AI, accountants will

have more time for client satisfaction and data analysis and interpretation(Shaffer *et al.*, 2020).

1.9.4 New Tasks/Changes to Existing Tasks

The link that accountants would have with data professionals, IT specialists, and others would result in a rise in accounting duties and positions even if AI resulted in job losses in the accounting industry. These positions would not be restricted to those in accounting and finance(Rîndaşu, 2017). The only jobs left in accounting, according to Kokina and Davenport's predictions from 2017, will be managing intelligent machines, working with vendors to develop new AI technologies, evaluating the efficacy of AI technologies, developing client relationships, analyzing financial data, and managing accounting tasks that systems cannot automate.

1.9.5 Adoption of New Competencies

Future requirements for success as an accountant are anticipated to alter from those of today (Kokina& Davenport, 2017). Accountants now need new skills that were probably not necessary a few years ago. Big data analytical skills, machine learning expertise, skills in leadership, communication, and critical thinking are among the attributes listed by Stancheva-Todorova (2018)(eye contact, self-assurance, presentation abilities, etc.).

1.9.6 Accounting Education and Training

The accounting profession would need to reform, and educators would need to be a big part of it. It is crucial that the educational system transforms to fit the modern world we live in. School curricula should be created in a way that they represent the qualities needed by the future workforce, such as creative capabilities(Stancheva-Todorova, 2018). Researchers have highlighted the necessity of colleges acting as a bridge between aspiring accountants and the industry by offering accounting students that are knowledgeable necessary to build IT skills, even if such knowledge is solely theoretical(Rîndaşu, 2017).

RESULTS

According to the results, it was observed that the majority of accountants participated in the study were aware of the application and implementation of artificial intelligence in the field. Further, their perceptions on the use of artificial intelligence in accounting were measured. With reference to the data collected, accountants illustrated an overall positive perception. Consequently, There were no significant correlation observed between the personal characteristics of accountants and their level of awareness on the use of artificial intelligence within the field of accounting. Likewise, there was no significant correlation observed between the personal characteristics of accountants and their perception on the use of artificial intelligence in the field.

DISCUSSION

The objective of the study was to examine accountants' awareness level on the use of AI in the field. Furthermore, it was also investigating the perceptions of accountants on the use and employment of AI in the accounting field. This was followed by analysis of the effect of personal characteristics on the awareness of accountants as well as their perceptions on the use and employment of AI in accounting. Ten hypothesis were tested using two different statistical test which are independent sample t-test and one-way analysis of variance (ANOVA).

CONCLUSION

Technology has become an important part in every life aspect and will continue to evolve. Thus, every individual should acquire the required awareness and knowledge of the different uses and applications of technology nowadays, especially within the workplace. Accordingly, technology in accounting will continue to evolve. This research has investigated and accountants' awareness level on the application of AI in the workplace. According to the results, it was observed that the majority of accountants participated in the study were aware of the implementation of AI aspects within the field. Moreover, their perceptions on the use of AI in accounting were measured. With reference to the data collected, accountants illustrated an overall positive perception. Relating to the hypothesis that were tested, there were no significant correlation observed between the personal

characteristics of accountants and their awareness level on the implementation of AI within the field of accounting. Likewise, there was no significant correlation observed between accountants' personal characteristics and their perception on the implementation of AI in the accounting. Results indicated that accountants are open to the implementation of AI in the workplace and they are excited for the new advanced work environment with all its opportunities. And with reference to the rapid changes happening within the workplace regarding AI, Accountants should increase their awareness regarding application of AI within their field. It is also the professional bodies responsibility to raise awareness and implement courses that increases accountants' knowledge on as well as focusing on highlighting the future impact of these technologies in the field positively.

Preprint

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Tables and Figures

Tables

Table 1. Individual Participants' Characteristics

		N	%
Gender	Female	80	51.6
	Male	75	48.4
	Total	155	100.0
Age	20-30	15	9.7
	31-40	36	23.2
	41-50	75	48.4
	51-60	23	14.8
	61 ≤	6	3.9
	Total	155	100.0
Highest Level of Education	Ph.D.	8	5.2
	Master's	67	43.2
	Bachelor's	80	51.6
	Total	155	100.0
Area of Accounting Specialization	Financial Accounting / Reporting	51	32.9
	Internal Auditing	3	1.9
	External Auditing	6	3.9
	Management Accounting	9	5.8
	Tax Accounting	33	21.3
	Advisory / Consulting	30	19.4
	Other	23	14.8
	Total	155	100.0
Work Experience	< 5 Years	7	4.5
	5 – 10 Years	20	12.9
	10 – 15 Years	15	9.7
	15 – 20 Years	38	24.5
	> 20 Years	75	48.4
	Total	155	100.0

Table 2. Participants' level of awareness regarding the employment of AI

		N	%
Discussions surrounding	Yes	123	79.4
	No	32	20.6
The use of AI?		Total	155
How did you become	Social Media	54	34.8
Aware of it?	Personal readings	78	50.3
	Publications from my professional body	48	31
	AI is currently being used at my workplace	14	9
	Other	45	29
	Total	155	100.0

Table 3. Participants' perceptions on the application of artificial intelligence and its effects.

	Strongly Agree n(%)	Agree n(%)	Neutral n(%)	Disagree n(%)	Strongly Disagree n(%)
AI in accounting reduces the motivation of accountants	6(3.9)	17(11)	12(7.7)	82(52.9)	38(24.5)
AI has useful applications in accounting	58(37.4)	67(43.2)	20(12.9)	4(2.6)	6(3.9)
AI capabilities are superior to the capabilities of human accountants	35(22.6)	58(37.4)	20(12.9)	38(24.5)	4(2.6)
AI will improve the way accountants carry out their work	49(31.6)	82(52.9)	16(10.3)	7(4.5)	1(0.6)
AI will reduce the time accountants spend on repetitive tasks	71(45.8)	66(42.6)	12(7.7)	2(1.3)	4(2.6)
AI will allow accountants to focus on more strategic roles in the work place	71(45.8)	60(38.7)	14(9)	6(3.9)	4(2.6)

The use of AI in accounting will lead to the emergence of new roles in the accounting profession	57(36.8)	80(51.6)	14(9)	2(1.3)	2(1.3)
Accountants would need to develop new skills to adapt to new AI trends	65(41.9)	75(48.4)	10(6.5)	2(1.3)	3(1.9)
Accounting curriculums in universities should include appropriate IT skills	88(56.8)	52(33.5)	7(4.5)	3(1.9)	5(3.2)
Accounting curriculums in universities should focus more on consulting the strategic areas of accounting not just technical accounting knowledge	84(54.2)	56(36.1)	6(3.9)	5(3.2)	4(2.6)
Human accountants will be replaced by AI in the foreseeable future	8(5.2)	28(18.1)	21(13.5)	82(52.9)	16(10.3)
I am worried that AI could replace me in my job	2(1.3)	10(6.5)	14(9)	102(65.8)	27(17.4)
I support the development of AI in accounting	53(34.2)	79(51)	15(9.7)	6(3.9)	2(1.3)
I am excited about the changes that AI will bring to the accounting profession	47(30.3)	75(48.4)	18(11.6)	12(7.7)	3(1.9)
I am adequately prepared to work alongside AI	37(23.9)	70(45.2)	27(17.4)	17(11)	4(2.6)

Table 4. Applications of AI and accounting expertise.

		N	%
Which of the following potential applications of AI do you think would be the most useful to accountants?	Fraud detection	99	63.9
	Forecasting Revenue, Cash flows, etc.	89	57.4
	Analysis of large volumes of Structured and unstructured data	119	76.8
	Automation of repetitive tasks	118	76.1

NOTE: This preprint reports new research that has not been certified by peer review and should not be used as established information without consulting multiple experts in the field.

	Identifying and extracting relevant information from documents	104	67.1
	Other	25	16.1
Which of the following skills do you consider most important for accountants today?	Technological literacy	110	71
	The use of information technologies	124	80
	Business Advisory Skills	116	74.8
	Communication skills	87	56.1
	Relationship Building	74	47.7
	Interpretation of Financial Information	129	83.2
	Other	16	10.3

Table 5. Descriptive data on how gender affects how accountants see the use of AI.

	N	Mean	SD
Male	75	37.5	30.406
Female	80	40	33.941

Table 6. Descriptive statistics on the obvious variation in accountants' perceptions on the use of AI.

	N	Mean	SD
20-30	14	7	5.7
31-40	37	18.5	16.3
41-50	75	37.5	27.6
51-60	23	11.5	12.02
61 ≤	6	3	4.24

Table 7. The impact of education level on accountants' opinions of using AI

	N	Mean	SD
Ph.D.	8	4	5.7
Master's	67	33.5	28.9
Bachelor's	77	40	29.7

Table 8. The impact of the accountants' line of work on how they see the usage of AI.

	N	Mean	SD
Financial Accounting/ Reporting	51	25.5	16.26
Internal Auditing	3	1.5	0.71
External Auditing	6	3	2.83
Management Accounting	9	4.5	6.36

NOTE: This preprint reports new research that has not been certified by peer review and should not be used as established information without consulting multiple experts in the field.

Tax Accounting	33	16.5	16.26
Advisory/Consulting	30	15	16.97
other	23	11.5	6.36

Table 9. The impact of experience years on accountants' thoughts of using AI.

	N	Mean	SD
less than 5 years	7	3.5	2.12
5 - 10 years	20	10	8.49
10 - 15 years	15	7.5	4.95
15 - 20 years	38	19	18.38
More than 20 years	75	37.5	31.82

Table 10. Descriptive statistics on the relationship between perceptions of accountants and gender.

	N	Mean	SD
Male	75	15	14.93
Female	80	16	15.6

Table 11. Descriptive statistics on the relationship between the age of accountants and how they view the application of AI in accounting.

	N	Mean	SD
20-30	14	3	3
31-40	37	7.2	7.19
41-50	75	15	16.54
51-60	23	4.6	3.65
61 ≤	6	1.2	1.64

Table 12. Descriptive statistics on the relationship between educational attainment and accountants' opinions on the application of artificial intelligence in accounting.

	N	Mean	SD
Ph.D.	8	1.6	3.049
Master's	67	14	14.09
Bachelor's	77	15.4	13.76

Table 13. Descriptive statistics demonstrating the relationship between years of experience and accountants' perceptions of the usage of artificial intelligence in accounting.

	N	Mean	SD
less than 5 years	7	1.4	1.52
5 - 10 years	20	3.8	4.32
10 - 15 years	15	3	3.08
15 - 20 years	38	7.4	7.16
More than 20 years	75	15	13.95

Table 14. Descriptive statistics on the relationship between the accountants' perceptions of the usage of AI in accounting and their field of employment.

	N	Mean	SD
Financial Accounting/ Reporting	51	10.4	9.76
Internal Auditing	3	0.6	0.89
External Auditing	6	1.2	2.17
Management Accounting	9	2	1.87
Tax Accounting	33	6.8	6.02
Advisory/Consulting	30	6	6.08
other	23	4.4	4.28

Figures

NOTE: This preprint reports new research that has not been certified by peer review and should not be used as established information without consulting multiple experts in the field.

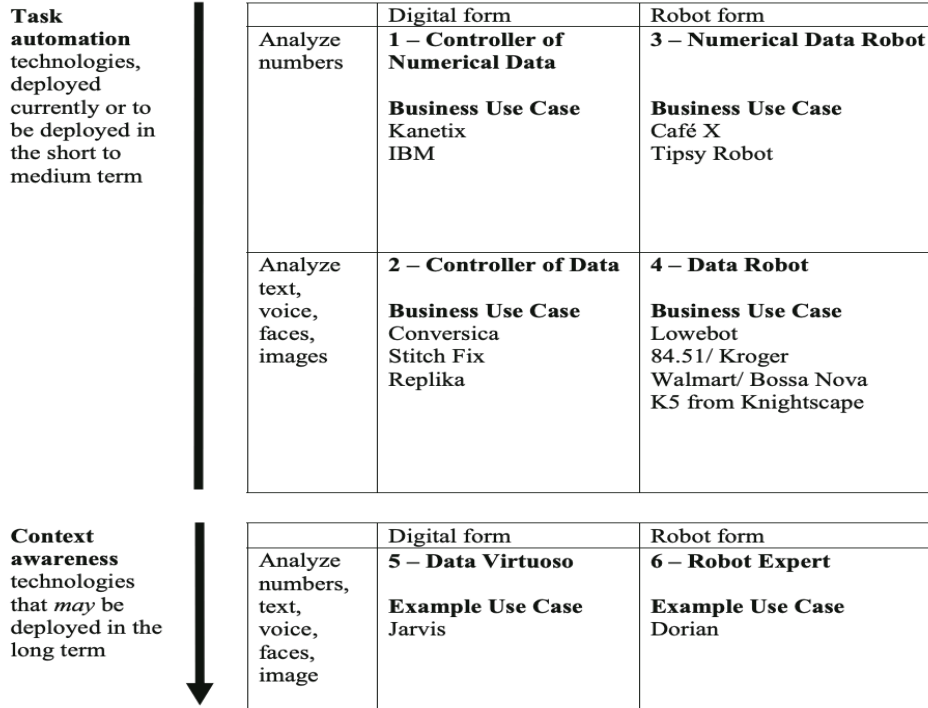


Figure.1 AI framework. Sourced from: (Davenport *et al.*, 2020).

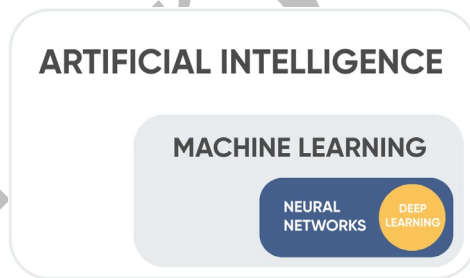


Figure 2.: The structure of the AI. Sourced from: (Serokell, 2020).

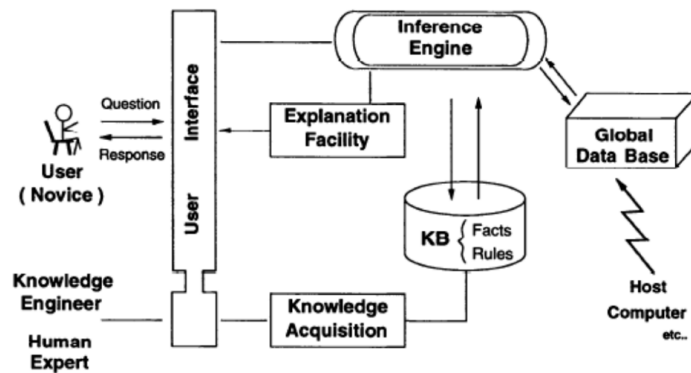


Figure 3. An expert system: one of the most successful AI products.

Sources from: (Mohammadi *et al.*, 2014)

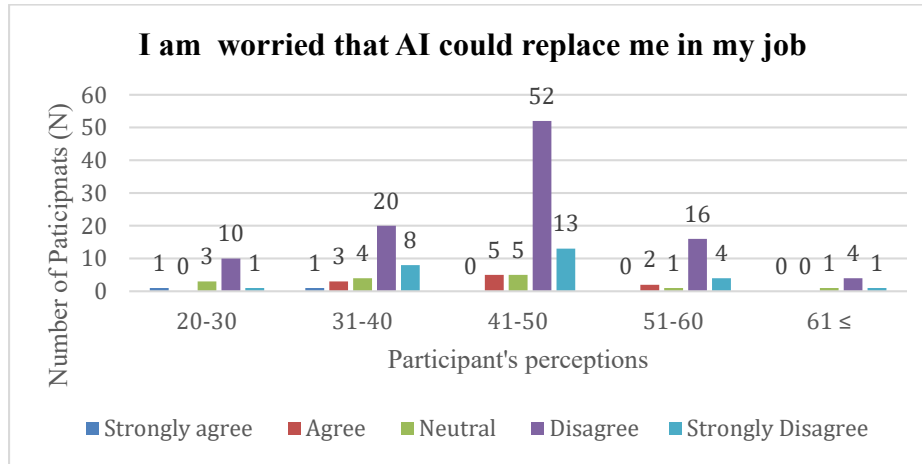


Figure.4 According to age, the number of participants who are concerned that AI may replace them in their employment.

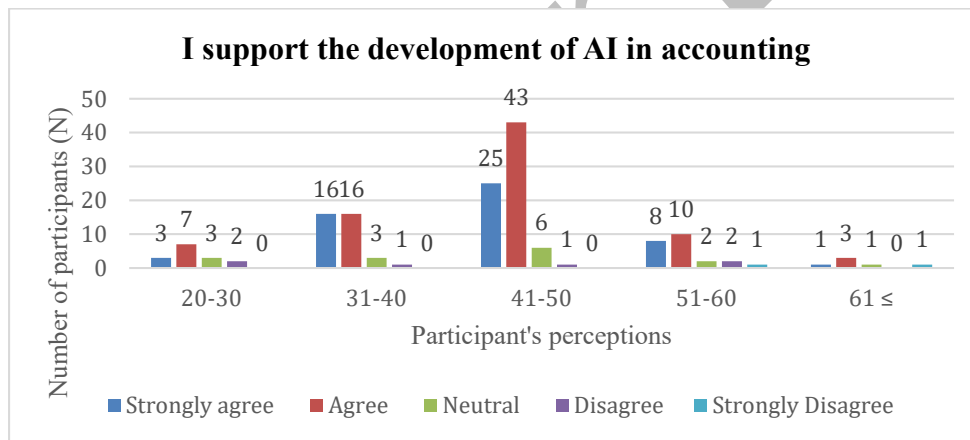


Figure 5. The number of participants who support the advancement of artificial intelligence in accounting.

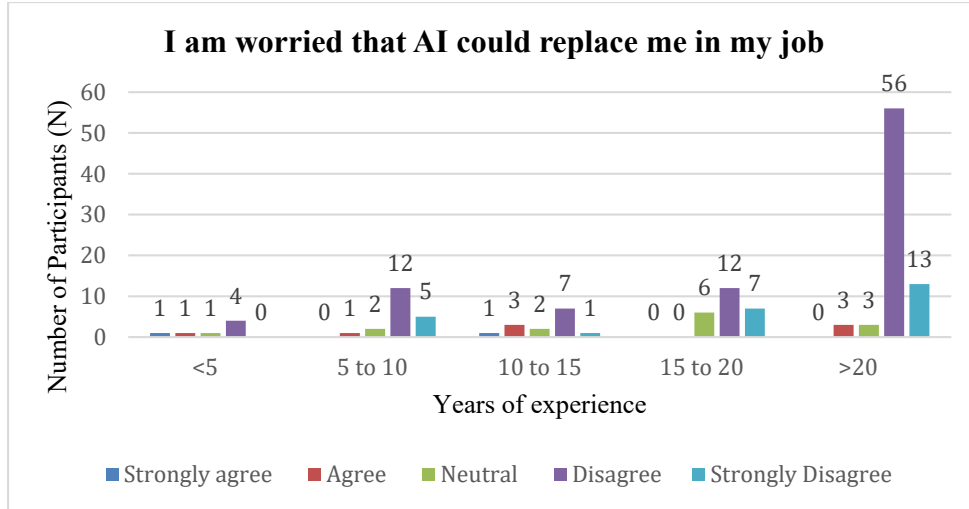


Figure 6. According to years of work experience, the percentage of participants who are concerned that AI may replace them in their position.

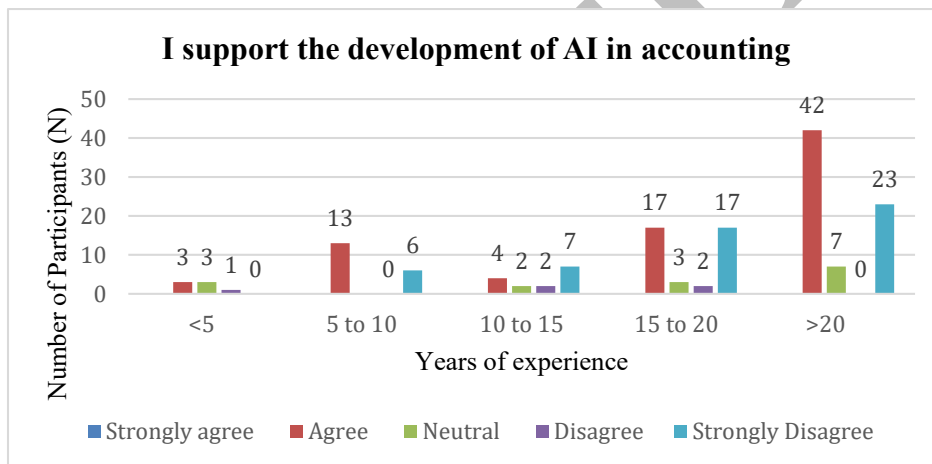


Figure 7. According to years of experience, the number of participants who support the growth of AI in accounting.

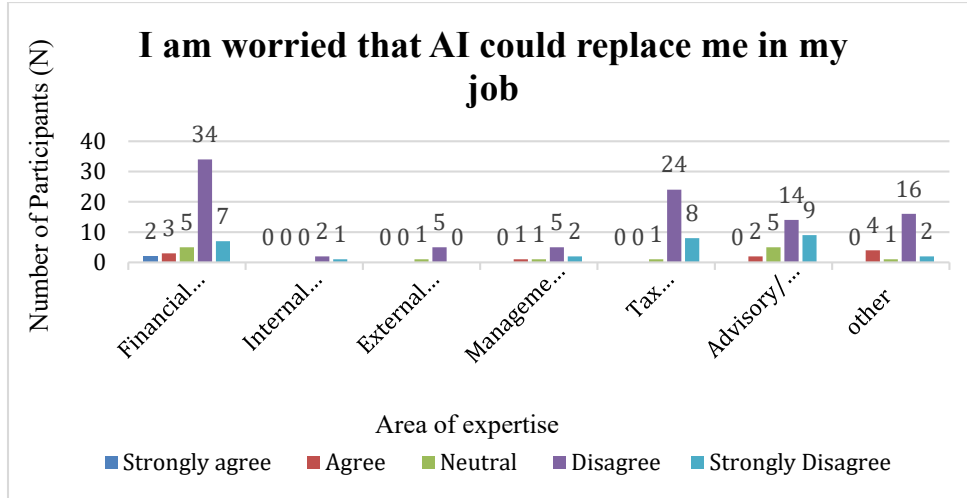


Figure 8. The number of participants who are worried that artificial intelligence could replace them in their job, based on their area of expertise.

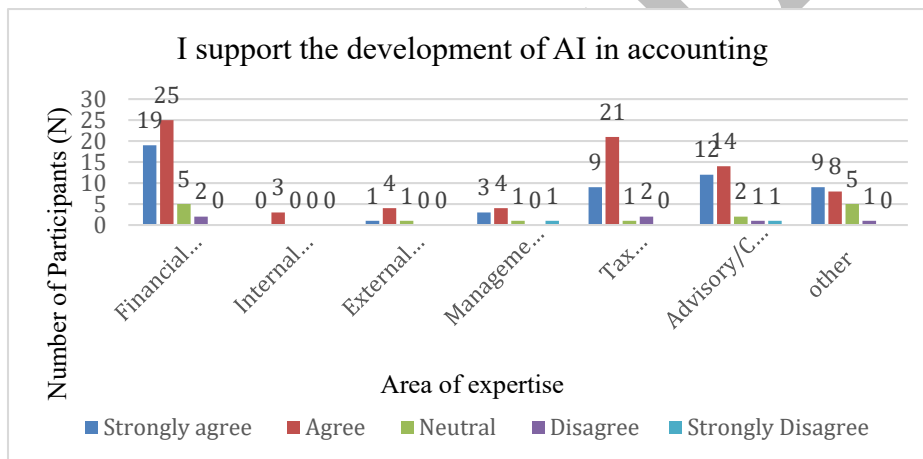


Figure 9. The number of participants who support the advancement of artificial intelligence in accounting based on their area of expertise.