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Master in Business Administration (MBA)

Postgraduate Dissertation

**Impact of technology on accounting departments, analysis of  
benefits and weaknesses of its appliance**

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Supervisor: Timotheos Angelidis

Patras, Greece, March 2025

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# **Impact of technology on accounting departments, analysis of benefits and weaknesses of its appliance**

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*“I would like to express my sincere gratitude to my supervisor Mr. Angelidi Timotheo for the guidance and support he offered me during the development of my dissertation.*

*I would like to thank anyone else who has contributed to this dissertation, questionnaire respondents, colleagues and friends.*

*Most of all, I would like to express my deepest gratitude to my family for their support and patience through this entire journey.”*

## **Abstract**

The current dissertation examines the impact of technology on the field of accounting. Literature research has been conducted to identify the ways in which the accounting area has benefited from the evolution of technology. Weaknesses and threats from the appliances of technology have also been examined. On top of that, research has taken place on the expected benefits of modern technologies such as Big Data and Artificial Intelligence (AI).

In the scope of the dissertation, a questionnaire was conducted and distributed to 96 accounting professionals. 88 participants replied to the questionnaire online and 8 of them replied in printed form. The results have been analyzed using SPSS program. The questionnaire revealed that accounting professionals adapt to technological changes and are adequately trained to use technology. However, technological related education would significantly contribute to their efficiency. Participants have also replied to questions related to their knowledge and use of several technologies. Their replies revealed that they are not familiar with Machine Learning technology and that more than half of them do not use Big Data and AI technologies. Participants have also been asked to evaluate the benefits and weaknesses of technology in accounting and recognized improved decision-making and better customer service as the main benefits of Big Data and AI (chatbots) respectively.

This dissertation also examined the new role of accountant. Half of the participants in the survey understand that the traditional role of accountants is changing while approximately half of the participants feel that accounting profession is threatened by technology. Based on literature research, technology provides new options to accountants and should be considered as a tool used to complement them than to replace them. The new role of accountants is to become business advisors and obtain consultive role.

## **Keywords**

Accounting, Technology, Artificial Intelligence, Machine Learning, Big Data

# **Επίδραση της τεχνολογίας στα τμήματα Λογιστηρίου, ανάλυση των οφελών και των μειονεκτημάτων/ αδυναμιών από την εφαρμογή της**

Θεοδώρα Αντωνιάδου

## **Περίληψη**

Η παρούσα διατριβή εξετάζει τον αντίκτυπο της τεχνολογίας στον τομέα της λογιστικής. Πραγματοποιήθηκε βιβλιογραφική έρευνα για την αναγνώριση των τρόπων με τους οποίους η λογιστική έχει ωφεληθεί από την εξέλιξη της τεχνολογίας. Επίσης, εξετάστηκαν οι αδυναμίες και οι απειλές από τις εφαρμογές της τεχνολογίας. Επιπρόσθετα, πραγματοποιήθηκε έρευνα για τα αναμενόμενα οφέλη των σύγχρονων τεχνολογιών, όπως τα Μεγάλα Δεδομένα και η Τεχνητή Νοημοσύνη (AI).

Στο πλαίσιο της διατριβής, διεξήχθη ερωτηματολόγιο το οποίο διανεμήθηκε σε 96 επαγγελματίες λογιστές. 88 συμμετέχοντες απάντησαν στο ερωτηματολόγιο διαδικτυακά και 8 από αυτούς απάντησαν σε έντυπη μορφή. Τα αποτελέσματα αναλύθηκαν χρησιμοποιώντας το πρόγραμμα SPSS. Το ερωτηματολόγιο αποκάλυψε ότι οι επαγγελματίες λογιστές προσαρμόζονται στις τεχνολογικές αλλαγές και είναι επαρκώς εκπαιδευμένοι στη χρήση της τεχνολογίας. Ωστόσο, η τεχνολογική τους εκπαίδευση θα συνέβαλε σημαντικά στην αποτελεσματικότητά τους. Οι συμμετέχοντες επίσης απάντησαν σε ερωτήσεις σχετικά με τις γνώσεις τους και τη χρήση διαφόρων τεχνολογιών. Οι απαντήσεις τους αποκάλυψαν ότι δεν είναι εξοικειωμένοι με την τεχνολογία Μηχανικής Μάθησης και ότι περισσότεροι από τους μισούς δεν χρησιμοποιούν τις τεχνολογίες Μεγάλων Δεδομένων και Τεχνητής Νοημοσύνης. Οι συμμετέχοντες επίσης κλήθηκαν να αξιολογήσουν τα οφέλη και τις αδυναμίες της τεχνολογίας στη λογιστική και αναγνώρισαν τη βελτιωμένη λήψη αποφάσεων και την καλύτερη εξυπηρέτηση πελατών ως τα βασικά

πλεονεκτήματα από την χρήση των Μεγάλων Δεδομένων και της τεχνητής νοημοσύνης (συνομιλητές με τεχνητή νοημοσύνη) αντίστοιχα.

Η διατριβή αυτή επίσης εξέτασε τον νέο ρόλο του λογιστή. Οι μισοί από τους συμμετέχοντες στην έρευνα κατανοούν ότι ο παραδοσιακός ρόλος των λογιστών αλλάζει, ενώ περίπου οι μισοί από τους συμμετέχοντες θεωρούν ότι το επάγγελμα της λογιστικής απειλείται από την τεχνολογία. Βάσει της βιβλιογραφικής έρευνας, η τεχνολογία παρέχει νέες επιλογές στους λογιστές και θα πρέπει να θεωρείται ως εργαλείο που θα τους συμπληρώσει και όχι που θα τους αντικαταστήσει. Ο νέος ρόλος του λογιστή είναι να αποκτήσει συμβουλευτική ιδιότητα.

### **Λέξεις – Κλειδιά**

Λογιστική, Τεχνολογία, Τεχνητή Νοημοσύνη, Μηχανική Μάθηση, Μεγάλα Δεδομένα

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## **List of Abbreviations & Acronyms**

IT = Information Technology

AIS = Accounting Information System

ERP = Enterprise Resource Planning

SME = Small Medium Enterprise

GDPR = General Data Protection Regulation

MFA = Multi Factor Authentication

IoT = Internet of Things

AI = Artificial Intelligence

ML = Machine Learning

# **1 Introduction and Objectives**

## **1.1 Introduction**

Nowadays, technology has conquered almost every aspect of human life with appliances that affect personal life but also business functions. Businesses operations are dependent on technology with several areas being radically transformed because of the evolution of technology. One of the business fields that was greatly impacted by evolution of technology is accounting.

There is evidence of the existence of accounting practices even before people started to write in Mesopotamia between 7500 and 3350 BC. Accounting has been through several steps through the decades, while during the last decade great changes have occurred to the way accounting processes are performed because of technological evolution. Initially, technological machinery such as computers, telephones and faxes has radically changed the way of work by transferring accounting from paper to digital form and by improving efficiency and time needed to perform several tasks. The introduction of accounting software and Enterprise Resource Systems (ERPs) brought further improvements by providing the capability to process data and among others generate automated general ledger entries, preparing reports, performing financial analysis etc. Latest advancements of technology like Artificial Intelligence and Big Data offer new opportunities in accounting and promise a new role for accountants.

In the scope of this dissertation, the impact of technology on accounting processes is examined by investigating global literature. Accounting has been benefited in several ways by technology, however there is also negative impact. Additional benefits that may occur because of the evolution of Artificial Intelligence and Big Data are also examined. Finally, a survey has been conducted to investigate the perception that accountants have of the benefits and weaknesses of technology in accounting, while examining the knowledge of accountants on new technologies and their beliefs about the future of accounting.

## **1.2 Importance of the dissertation**

This dissertation presents the impact of technology on the area of accounting. It aims to investigate the perception that accountants have of the impact of technology on their profession. Research goes further to analyze which benefits and weaknesses accountants believe are the most important while it investigates their expectations and knowledge on the benefits of latest technologies on accounting tasks. The survey conducted aims to provide answers on the following:

1. Do accountants perceive technology as a threat, or do they embrace it positively?
2. Do accountants understand the benefits and challenges of new technologies that were identified in literature?
3. Are accountants aware of the benefits of the latest technologies (Big Data, AI) in their profession?

## **1.3 Dissertation structure**

This dissertation contains 5 chapters. In chapter 1, the scope of this dissertation is presented, and its importance is described. In Chapter 2, a historical review of the phases that accounting went through is performed while literature review reveals the contribution of technology to accounting by describing benefits and weaknesses and by analyzing the key technologies for accounting. Chapter 3 describes the research methodology that has been used, the purpose of this research and the steps followed. In chapter 4, the questionnaire conducted is presented and the results are analyzed using descriptive statistics, ANOVA, Pearson correlation and regression analysis. In chapter 5, the conclusions are discussed while the limitations of the research are presented, and suggestions are made for further research.

## **2 Literature Review**

### **2.1 Accounting: Definition and historical review**

#### **2.1.1 Definition**

There are several definitions for accounting, three of which are provided below:

“Accounting is the process of recording financial transactions pertaining to a business. The accounting process includes summarizing, analyzing, and reporting these transactions to oversight agencies, regulators, and tax collection entities.” (Investopedia)

“Accounting, also known as accountancy, is the process of recording and processing information about economic entities, such as businesses and corporations. Accounting measures the results of an organization's economic activities and conveys this information to a variety of stakeholders, including investors, creditors, management, and regulators.” (Wikipedia)

“Accounting, which is often just called "accounting," is the process of measuring, processing, and sharing financial and other information about businesses and corporations.” (The Economic Times)

In all the definitions there are terms used in common such as process, recording of transactions, analysis, reporting and sharing information.

#### **2.1.2 Historical Review**

Accounting started even before writing in the period 7500 to 3350 BC in Mesopotamia where farmers used symbols to count and calculate the produced goods (Schmandt-Besserat). Later, between 3500 and 2000 BC, the profession of “Scribes” arises in Mesopotamia (Botes). “Scribes” were accountants of that period who recorded on clay tables, financial transactions between two parties for exchange of products and money in the form of agreements (Alexander).

In the period between 3000 BD and 1000 AD, accounting appears in Egypt, China, Greece and Rome. Egyptians used papyrus which allowed them to record detailed transactions.

Bookkeepers working in royal storehouses had to be very accurate as they were imposed on a royal audit (Alexander). In China, accounting has been used to evaluate efficiency of governmental programs and the civil servants who administered them (Alexander). Especially during Chou dynasty, the government appointed six officers, one of which had responsibilities such as financial management, government accounting and financial control, while financial reports were prepared on year basis (Xu & Zhang). In ancient Greece, ten state accountants, elected by the public, had to control receipt and expenditure of public money (Alexander). Additionally, the first coined money appears in 600 BC and banks are created to change and loan money while they arrange cash transfers in other cities (Alexander). In Rome, the heads of the family had to record daily receipts and payments, while postings were made to a cashbook known as a “codex accepti et expensi”, on monthly basis. A significant contribution from Rome is the use of the annual budget.

There is no significant progress for accounting during Medieval period from 1130 AD to 1485 AD. While in the Roman Empire accounting was centralized, during the Medieval period the bookkeeping was localized and centered on the specialized institutions of the feudal manor (Alexander). Another important fact about this period is “Domesday Book” in England which was a survey about the real estate and the respective taxes due. The oldest accounting record in England is the “Pipe Roll” which describes rents, fines and taxes to the King (Alexander).

In the next two centuries (15<sup>th</sup> to 16<sup>th</sup>), Italians make great progress on accounting by elevating their commerce and by keeping extensive business records. The highlight is the introduction of the double-entry bookkeeping system. Although there is evidence of double-entry bookkeeping since 1299 from Amatino Manucci, the first published description of it has been written by Luca Pacioli in 1494. Pacioli’s book “Summa de arithmetica, geometria, proportioni et proportionalita” contained instructions such as record of transactions in chronological order, inventory listing in one day, appraisal at current market value (Alexander). For this reason, he is considered the parent of accounting.

The next phase of accounting takes place in Great Britain and Scotland. The appearance of companies of bigger sizes and the employment of managers to run them instead of owners, created the need for auditing in financial records (Berisha, Asllanaj). Great Britain’s businesses grow and thus the accounting profession advances. In 1854 in Scotland, the first professional association of accountants is founded. Establishment of other national

accounting associations follow reaching also the United States (Berisha, Asllanaj). Accounting Institutes were also founded like the National Accounting Institute founded in 1887 defining accounting practices and rules to be followed by businesses. In the middle of the 20th century international accounting rules are established. One important milestone is the establishment of the International Federation of Accountants (IFAC) during 11th World Congress of Accountants held in Munich in 1977. One of its objectives was the Formulation and publication of International Accounting Standards (IASs) (Berisha, Asllanaj).

## **2.2 Contribution of Technology in Accounting processes**

### **2.2.1 Technology and Information Technology**

Term Technology concerns mainly the development of equipment and machinery as a result of scientific knowledge. Information Technology concerns functions related to data, meaning data storage, retrieval and sharing. Accounting functions have been affected by the evolution of technology itself, while accounting profession faces new challenges because of information technology.

Primarily, accounting functions have been affected by technology. Companies have been equipped with machines like computers, faxes, printers. This is an obvious impact in the way a business operates. However, apart from the equipment, what makes the crucial difference in working environments is the use of applications and software that improve the way of working. In case of accounting, Accounting Information Systems are used.

An Accounting Information System (AIS) based on Investopedia is a system for the collection, storage and processing of financial and accounting data. As Francis Pol C. Lim mentions, there are three types of AIS which are the following:

- **Manual:** This is the traditional manual process where the only participant is human. Everything is registered on paper by humans and thus it is vulnerable to errors. It has been replaced by Computer bases systems
- **Computer Based:** In this type of system, employees register the data to computers instead of paper. Accounting data are stored on the system, but they are not linked to the operating data. For this reason, accounting applications have been developed.
- **Database Systems:** Thesa are business-based applications that aim to cover all business data. Financial and non-financial data are stored in the data warehouse.

Data are needed to be stored only once avoiding redundancy. This type of system is the Enterprise Resource Planning (ERP) system.

### **2.2.2 Technologies and technology trends**

There are several technologies that have impacted accounting processes in the last century such as the Internet, automation tools, accounting applications, cloud, AI. Some of these technologies introduced in the 20th century are mature such accounting applications and ERPs. However, the evolution of 21<sup>st</sup> century has brought new challenges in the area of accounting through introduction of technologies of Big Data, Artificial Intelligence and Machine learning. This type of technologies provides new opportunities to accountants which are in premature phase especially in the Greek market.

The most Important technologies are discussed below:

### **2.2.3 Accounting Applications and ERPs**

Accounting applications have been introduced to facilitate functionalities of accounting departments. Modules such as general ledger, accounts payables, accounts receivables, payroll and financial reporting are included. Many companies decide to use ERPs instead of traditional information systems.

Enterprise resource planning (ERP) systems offer more capabilities than accounting systems as they integrate all aspects of a company's operations aiming to manage and coordinate the company's resources, financial and business activities (S. Goumas, D. Charamis, E. Tabouratzi). One of the main benefits of the use of ERP systems is that operations are standardized and management is centralized (M. Granlund). Other benefits are the provision of real-time information, generation of information for decision making and integration of applications (Spathis, Constantinides). Especially improvement of decision-making process is a benefit that is mentioned vastly in the literature along with the better quality and accuracy of reporting (A. Kanellou, C. Spathis).

Raquel Pérez Estébanez presents a very detailed analysis of ERP benefits organized in four categories which are accounting, organizational, external and internal benefits. As far as it concerns the accounting benefits, the most important benefits include integrated management control, integration of accounting applications, efficiency, cost reduction, improved productivity, obtaining information and process standardization.

A study from S. Mukherjee proposes a matrix with ten aspects that measures the benefits of the incorporation of an ERP system by a company. This list includes benefits related to reduced sales order lead time and production lead time. It further mentions cost benefits because of MRP (Material Requirement Planning) too, which assists in reduced ordering costs. The list also considers better handling of customer complaints and improved customer satisfaction while the introduction of new products is easier. Finally, vendor evaluation and selection benefits are mentioned.

#### **2.2.4 Cloud Computing**

Cloud Computing based on IBM, the largest industrial research organization in the world, is “the on-demand access of computing resources—physical servers or virtual servers, data storage, networking capabilities, application development tools, software, AI-powered analytic tools and more—over the internet with pay-per-use pricing”.

Evolution of technology and mainly the expansion of the Internet has enabled the development of cloud computing in the beginning of the 21st century. Companies can now use cloud services instead of having to install applications on employees’ devices. In this way, company information can be accessible almost from everywhere. Based on O. Dimitriua and M. Mateia, cloud accounting should be considered as a new business model with two characteristics. The first one is that companies purchase a service to use accounting software instead of purchasing the software and the second one is the provision of up-to-date information.

In the study of Dimitriua and M. Mateia, two main benefits of cloud computing are mentioned. The first benefit is the reduced cost. Purchasing a cloud service, which is the use of application software, is cheaper than purchasing the software and the respective hardware, while there are also maintenance costs of the hardware. Additionally, updated versions of the product are available to the users with no downtime. The second benefit is the increased productivity. Employees can have access to the company’s information all day and from anywhere. On top of this, the provider of the software takes over several tasks like backups and security measures. Finally, scalability is also a benefit as the company can easily modify the used resources based on its needs.

Apart from the benefits, concerns and risks are presented. The main concern is the security of the financial data. Companies are very cautious about transferring their financial data to the cloud. However, this perception changes by time. Another risk is the dependence on the Internet. Cloud services may be available 24/7 from anywhere but in case of internet unavailability, a company may not be able to operate at all.

### 2.2.5 **Big Data Analysis**

Data collection and analysis have changed a lot during last century. In the past, data were difficult to collect while they were manually managed if not digitalized. Evolution of technology has offered the following options:

- Collection of data using digital means/ media
- Storage of data
- Data processing and analysis

New technologies have provided the ability to collect huge amounts of data which are named Big Data. Based on González García, C and Álvarez-Fernández, E. Big Data is “the process of seriously applying computational power to massively large, highly complex, heterogeneous and growing datasets that have multiple sources”.

Another definition for Big Data uses as pillars the 3Vs, which are described below:

- Volume: amount of data
- Variety: data received from different sources and different formats
- Velocity: speed that the data are collected

Theory of 3Vs is the most popular, however there are articles introducing from 3Vs to 10Vs, including veracity, variability, value, visualization etc. (González García, Álvarez-Fernández). According to D. Janvrin and M. Weidenmier Watson, the Vs that accountants are interested in are among the 10Vs and these are veracity and value. Veracity concerns the accuracy and reliability of the data while value refers to the cost benefit of the collection of data.

Big Data have been used in several areas such as healthcare, engineering, business and finance (Tosi, Kokaj and Roccetti). Accounting area is also affected by Big Data while there is space for expanding its use. At the moment, the following applications can be identified (Theodorakopoulos, Thanasas, Halkiopoulos):

- Auditing
- Fraud Detection
- Financial analysis

Based on the same source (Theodorakopoulos, Thanasas, Halkiopoulos), Big Data will affect accounting profession in the following areas:

- Financial Reporting: Accurate and On-Time
- Risk Management improvement
- Different role for accountants
- Development of new accounting products and services
- Audit efficiency

Expanding assurance skills to new sources of (external) Big Data can be seen as the next step in the evolution of accounting (Janvrin, Weidenmier Watson).

#### **2.2.6 Artificial Intelligence (and Machine Learning)**

Based on Britannica dictionary artificial intelligence (AI) is “the ability of a digital computer or computer-controlled robot to perform tasks commonly associated with intelligent beings” or “the power of a machine to copy intelligent human behavior”. In other words, it is the simulation of human intelligence by machines.

Concept of Artificial Intelligence (AI) is considered to first appear in Greek mythology. There are several examples like Hephaestus’ golden maidens, created by him, who could speak and move and Talos giant who was made by bronze and his purpose was to protect the island of Crete.

The actual birth of AI is placed in the 1950’s. An important milestone is 1950 when Alan Turing created the Turing test which aims to evaluate whether a machine can reply like humans by comparing his replies with those of a human. The term of AI was introduced in 1956 by John McCarthy in Dartmouth Conference. For this reason, McCarthy is considered the father of AI.

AI is an area of technology that has evolved very fast especially after 2000’s. It offers opportunities such as performing human tasks faster, automating tasks, making predictions based on provided data. Thus, the adoption of AI in business processes has many benefits

such as reduced errors, managed risks, gain of competitive advantage and enhanced efficiency (Nur Syahmina Afiqah Zamain, Ulaganathan Subramanian, 2024).

In the aforementioned research, there is detailed analysis of the AI tools and their appliance is described. These tools are chatbots, automation processes, data insights and business assistants. Chatbots that use NLP (Natural Language Processing) model, can be used to support customers service while RPA (Robotic Process Automation) can be used to validate customer input. Finally, automation can take over the payment processing.

Another aspect mentioned in this research is the ability to perform cognitive tasks which benefit accounting as productivity is improved through automation. Great benefits are present also for auditors where cognitive AI contributes to the evaluation of risks and assists auditors on how to react. Otherwise, skills needed to perform such actions need years to be developed.

Finally, this research indicates that AI is the most important feature of technology, providing techniques like expert systems, neural networks and fuzzy logic. These techniques provide benefits such as problem resolution and guidance, fraud detection, stock price prediction, facilitation of audit, credit value prediction, final cost estimation, accuracy on cost budgeting and financial accounting and internal control evaluation.

Another research by J. Kommunuri indicates that AI will change accounting functions with the use of algorithms and coding languages. New capabilities will be offered such as detection of misstatements and irregularities while accounting estimation will be improved. Additional benefits are liquidity forecasts, fraud detection, prediction of litigation risks, process large data sets, perform routine tasks, automate time-consuming tasks. On top of this, accountants have new opportunities and thus will obtain a more strategic role.

This research describes the subsets of AI, which are Machine Learning (ML), Robotic Process Automation (RPA) and Artificial Neural Networks.

### **Machine Learning (ML)**

Machine Learning uses algorithms to learn from existing data and provides an outcome which may be a prediction. In more detail, it uses statistical models to analyze and learn from the data. Then algorithms are applied to find patterns and provide an outcome such as

a problem resolution. The process is continuous and aims to incorporate information from new data.

ML can be classified as supervised, unsupervised, semi-supervised and reinforcement learning (J. Kommuniri, 2022). In supervised learning, the used algorithm is trained on labeled data, while unsupervised unlabeled data are used aiming to identify unknown patterns/ threats. In semi-supervised learning, a combination of labeled and unlabeled data is used. Finally, in reinforcement learning an intelligent agent learns to act in a dynamic environment to maximize a reward.

Currently, ML appliances on accounting are narrow. Some examples of appliances of ML on Accounting are provided from Singh, Thakkar, Weerawarna and Patel ML for the case of PWC. In this case, ML software validates journal entries by checking whether there are suspicious keywords in the entries, abnormal number of entries or posts from untrusted sources.

According to J. Kommuniri, high volumes of available data in the web, contribute to the effectiveness of ML. Generated estimates are more reliable and consistency. Additionally, ML can find patterns after investigating accounting data and predict errors, identify misstatements and irregularities. Very important benefits are expected for auditors as ML can contribute significantly to the evaluation of complex accounting estimates. Benefits for auditors are also mentioned by Singh, Thakkar, Weerawarna and Patel, as ML can interpret legal documents and focus on key points while detecting also anomalies and trends. This means better performance of auditors in shorter time and higher quality deliverables.

### **Robotic Process Automation (RPA)**

Robotic Process Automation is a technology that aims to replace repetitive tasks performed by humans. This allows tasks to be performed faster and with less errors as there is no manual intervention. Benefits are obvious as productivity is increased, time needed to perform tasks is decreased while processes are more accurate, consistent, traceable and of better quality (J. Kommuniri). Such actions are processing of vendor invoices and bank reconciliations.

### **Artificial Neural Networks (ANN)**

Artificial Neural Networks (ANNs) mimics the way the neurons of human brain work. It uses input data which are then transformed and analyzed to create an output or solve a problem. It can be used in several fields such as Image and Video Recognition, Natural Language Processing and Prediction and Forecasting. As far as accounting is concerned, based on J. Kommunuri ANNs can contribute to market forecasts, analysis of financial statements, analytical procedures review and risk assessment.

## **2.3 Benefits from appliances of technology**

Technology has evolved over the years, causing changes in the way businesses operate. Initially technology has affected accounting with the introduction of machines, and consequently information technology has caused greater changes.

There are several references in the literature about the benefits of appliance technology and information technology. These benefits can be classified in the following categories:

- Equipment and reduction of paper usage
- Customer Service
- Speed
- Efficiency and Accuracy
- Reporting
- Fraud Detection
- Decision Making
- Competitive advantage
- Reduced Costs
- Flexibility
- Security

### **2.3.1 Equipment and Reduction of Paper Usage**

The first change in technology that affected accounting and businesses in general is the use of machines and mainly the use of computers. Computers first appeared in the third industrial revolution and impacted on a lot of professions, including accounting.

The importance of equipment for the benefit of accounting is present in several literature papers. Based on Francis Pol C. Lim, companies that use computers and other machinery

like faxes, printers and scanners have competitive advantage against those who don't. Additionally, Dr P. Sridhar mentions that computerized systems are the part of technology that has had the biggest impact on accounting as computers enabled the tracking and recording of financial transactions by replacing ledgers written on paper and financial statements written on hand. The impact of technology equipment is noted as benefit also from I. C. Nnubia and I. Oghenekao. Finally, Dr.Jaydas.S mentions that devices such as computers, mobiles and tablets contribute to decision-making through collection, recording and summarization of financial data.

Computers, phones, printers and other devices are now affordable for most businesses. Additionally, improvement of technology provided to users with better and faster devices. Extensive usage of computers combined with the abilities that Internet and EDI offer, has led to the reduction of printed documents. Businesses can now send invoices to the customers for purchase in a retail shop through mail, without any document printed in physical form. Many companies also follow the zero-paper policy by taking advantage of the capabilities of technology.

### **2.3.2 Customer Service**

There are several references in the literature about the contribution of technology improved in customer service. Customers can now be served in several ways such as through phone calls, e-mails, use of AI tools. Based on F. P. C. Lim, communication with customers through mails instead of phone calls can be cost efficient.

AI provides great tools to improve customer service according to N. S. A. Zamain and U. Subramanian. Interactive tools and chatbots can be used to interact with the customers to advise on sales and reply to questions. Additionally, accountants and auditors can monitor customers' overdue invoices and payments and have an overview on customers' transactions easily and very fast.

According to R. P. Estébanez, ERPs contribute to the improvement of customer service by providing capabilities such as customer self-service and quick responses to customers. Additionally, customer service is improved by reducing product lead time and maintaining inventory levels.

Improved customer satisfaction through the use of ERPs is also mentioned by S. Mukherjee. Based on his research, ERPs can help on the collaboration with the customer while can be used to receive feedback and complaints in order to achieve higher level of customer satisfaction. In general communication with business partners (customers, suppliers) is more effective. Improved relationships with both customers and suppliers are notes also by S. Goumas, D. Charamis and E. Tabouratzi.

### 2.3.3 Speed

One of the most important changes that technology brought to accounting is the time needed to perform several types of actions. Actions such as manual calculations, bookkeeping and preparation of accounting statements can now be performed much faster than when performed manually by accountants.

Based on Dr. Jaydas.S technology ensures faster preparation of accounts and speed of operations. Based on S. Goumas<sup>1</sup>, D. Charamis and E. Tabouratzi, time needed to perform several processes is significantly reduced. Accounting processes are performed faster. Accountants do not have to make calculations previously performed manually and accounting statements are produced automatically.

Faster processing is also mentioned several times in literature. For example, I. C. Nnubia and Igbru Oghenekao consider the benefit of faster processing while S. Mukherjee mentions the benefits of speed up pf processes. Additionally, R. P. Estébanez speaks about faster data gathering in the ERPs systems. It is notable that F. P. C. Lim refers to speed as the hallmark of information technology as the information generation process is faster. Finally, this benefit is also noted by Dr P. Sridhar

Important contributions to the speed of the processes have been achieved by the use of RPAs (Robotic Process Automation). RPAs can perform repetitive tasks much faster than humans and with no errors. RPAs can be used to streamline processes such as integrate with several systems, extract information from one system and import in another one and perform several predefined actions.

The impact of AI on time needed for accounting tasks is notable. Accounting departments have to handle a workload of accounting activities which require the respective workforce to perform all the sets of activities. By using AI tools, these processes can be completed

faster and with no errors. Machines can work unstoppably with the same speed while they can prevent human errors by applying logical rules.

#### **2.3.4 Accuracy and Efficiency**

Machines and software do not perform errors such as humans and thus the results of their processing are more accurate. According to Dr. Jaydas.S, one of the problems of manual systems is manual errors, a possibility which is much reduced with the use of computers. Improved accuracy is also supported by F.P.C. Lim and I. C. Nnubia, I. Oghenekao.

According to S. Mukherjee, ERPs provide accurate and precise information which is easily accessible. Additionally, all the information is gathered in one place and the threat of false data is reduced. On top of this, in their research on ERP benefits, S. Goumas, D. Charamis and E. Tabouratzi state that because of ERP systems there is no need for manual data entry and there is accuracy in account statements and financial reports. Additionally, they mention the benefit of performing accounting processes more efficiently.

Efficiency is among one of the most important benefits of technology and for this reason is mentioned in several literature papers. Efficiency is to achieve the best results with the least possible resources. In other words, to achieve better productivity or performance. Streamline of processes and automation of routine tasks (F. P. C. Lim) are characteristic examples of achieved efficiency (F. P. C. Lim).

#### **2.3.5 Reporting**

One of the most important activities of accounting is the preparation of accounting and financial statements and reports which are the mirror of the status of the company. Some of these statements and reports are the balance sheet, the income statement, the cash flow statement, trial balances, budget reports etc. These reports are used by the firm to inform top management and make decisions, by external partners, public authorities and all other interested parties to evaluate the financial status and health of the company.

Reports are one of the main daily tasks of accountants while the time needed to prepare the reports is much reduced with the use of technology (I. C. Nnubia, I. Oghenekao). Additionally, the quality of reports is much improved through the use of information systems and specifically ERPs providing reliable information (Raquel Pérez Estébanez).

Several pieces of information on the benefits of reporting through ERP systems, is provided in research of S. Goumas, D. Charamis and E. Tabouratzi. Firstly, the benefit of homogeneity of reported information is mentioned. The importance of real-time information depicted in reports and in profitability analysis is also highlighted while the time needed to prepare reports is significantly decreased. Furthermore, the time needed to address increasing auditing requests is reduced. As a result, accountants have more time available to focus on the quality of reports instead of their preparation.

### **2.3.6 Fraud Detection**

Employees that have access to the accounting system can use it to commit financial fraud. With the use of AI many processes can be streamlined and automated and thus accounting transactions can be created from AI tools, not requiring employees to have access to perform certain actions. Access of employees can be restricted to review the process results. Additionally, technology can trace users' actions and alert upon suspicious behavior. An example of such an automation is payment processing where companies' payments are reconciled based on the bank statement without human intervention (N. S. A. Zamain, U. Subramanian).

### **2.3.7 Decision Making**

Accounting is crucial for decision making as top management rely on accounting statements such as income statement, balance sheet, cash flow statement etc. to make well informed decisions about the next steps of the company.

According to Dr. Jaydas evolution of technology and in more detail use of computers, mobile devices and internet, have facilitated functions such as collection, recording and aggregation of financial information. This financial data are then used by management in decision making.

The importance of real-time information in decision making is also mentioned in several papers. Information systems provided the ability to receive accurate real-time information which is supported by S. Mukherjee. Additionally, R.P. Estébanez states that ERPs, the main application used by accountants, provide reliable and timely information which leads to faster and better decisions.

Decision making uses reporting as its source of information. According to I.C. Nnubia and I. Oghenekao decision making is easier and quicker because of the available reports. Furthermore, S. Goumas, D. Charamis and E. Tabouratzi state that ERP reports and the provision of information (financial and non-financial) from several departments, contribute to improved decision making.

### **2.3.8 Competitive Advantage**

According to Investopedia competitive advantage “refers to factors that allow a company to produce goods or services better or more cheaply than its rivals”. In other words, it means that a company does something better than others do. One of the factors of competitive advantage of a company is technology.

The use of technological equipment such as computers, mobile phones, printers etc. provides a competitive advantage to a company in comparison to a company that does not use such equipment (F. P. C. Lim.). Based on the same source, technology facilitates a company to produce new and improved products while costs can be reduced. Thus, productivity has improved while the number of employees is reduced. All the create opportunities for competitive advantage for the company.

Based on several literature sources, improvement of business operations leads to competitive advantage. As R. P. Estébanez states, operational performance contributes to the competitive advantage. Furthermore, use of ERP systems which facilitate streamline of processes and efficient use of resources also contribute to competitive advantage according to S. Goumas, D. Charamis, E. Tabouratzi.

### **2.3.9 Reduced Costs**

Cost is one of the benefits of technology that is controversial as in literature it can be found both as plus and a minus of technology. In this paragraph, the cost benefits are presented.

In his paper Dr. Jaydas makes an extensive report of the costs savings because of the use of technology. The paper mentions common cost saving factors such as improved productivity and reduced labor costs. The author states that there is great cost benefit for the company if cloud accounting is used. In this case, the company does not have to pay up-front for the provision of an accounting system and the corresponding hardware. The company pays for the software as a service (SaaS) license which is much cheaper. Also cloud services offer

the option to upgrade if additional need occurs. This benefit is also mentioned by R.P. Estébanez suggesting SMEs (small medium enterprises) should replace traditional ERPs with cloud ERPs to gain scalability and avoid investment costs.

Economic efficiencies are also presented by F.P. C. Lim. Based on this paper, technology helps to centralize tasks while costs can be further reduced if some functions are transferred online as stated also in the previous paragraph. Additionally, cost benefits may occur in the case of outsourcing activities. On top of this communication is much cheaper than in the past and remote work can reduce further the costs. Finally, customer support costs can be reduced by using alternative ways to serve customers.

### **2.3.10 Flexibility**

One of the benefits of technology that has an impact on accounting is flexibility. Modern information systems are flexible to adapt to changes such as in the case of online invoices (I. C. Nnubia, I. Oghenekao). Recently, this change has been launched in the Greek market by several companies also in retail industry. Accounting systems and ERPs have been adjusted to issue e-invoices for their customers and send them to customers through mail.

Another aspect of flexibility is presented by S. Mukherjee and is related to the benefit of IT infrastructure. According to this paper improvements on infrastructure make IT accessible by more employees and thus the company acquires better IT knowledge which make the company more flexible for future IT actions/ investments.

Flexibility or scalability is also observed in applications where upgrades are needed. For example, as F. P. C. Lim states that information can upgrade so as to handle an increasing number of transactions. On top of this, as mentioned in the previous paragraph, cloud services are flexible to offer additional services when needed.

Finally, the benefit of flexibility is mentioned also by Dr P. Sridhar while R. P. Estébanez presents the positive impact on reporting where the needed information can be generated in multiple ways.

### **2.3.11 Security**

Security of an information system mainly concerns the security of the data it holds. Nowadays, companies are very sensitive on the protection of their systems and make efforts in order to comply with GDPR (General Data Protection Regulation) requirements.

There are several ways to secure the information stored in an Accounting System. At first, the introduction of the information system transferred information from paper to computers. I.C. Nnubia and I. Oghenekao mention the higher level of security of systems that are password protected against paper. The security of the data depends on the person that has access. Software applications provide tools to define which user/ employee has access to each type of information while there are also measures to protect stored data. Stored data can be encrypted securing further the unauthorized use (F. P. C. Lim).

## **2.4 Weaknesses of technological appliances**

Technology has transformed the functioning of companies, and the type of activities accountants do. The benefits are huge, however there are also challenges to face.

### **2.4.1 Cyber and Data Security Risks**

One of the areas of technology that has emerged rapidly during the last years is the security of the systems. Companies use a lot of applications to perform their operations, and these applications are accessible remotely by several users which use several means such as computers and mobile phones. On top of that, huge volumes of data are stored on companies' systems requiring the attention of the people who can access it.

Use of the Internet is an open door to external risks for each company but at the same time the majority of companies operate in the digital world. There are several papers that analyze cyber security threats.

Research from E. Haapamäki and J. Sihvonen indicate that financial management systems depend more and more on information systems and networks and thus cyber threats are increased. As a result, cybersecurity is a matter of great importance, and each company should implement a cyber security strategy or a cyber security program. This research presents a framework of five pillars for cyber security which are:

- cybersecurity and information sharing

- cybersecurity investments
- internal auditing and controls related to cybersecurity
- disclosure of cybersecurity activities
- security threats and security breaches

The same study mentions that there are benefits for companies and societies if the information is shared but companies are often reluctant to do so. Finally, this research highlights that proactive cybersecurity activities have an impact on the value of the firm.

Another study by K. R. Lahu makes an analysis of the cyber security risks, the impact of security breaches and respective measures that can be taken. The cyber security risks mentioned are the phishing attacks, malware and ransomware, insider threats, weak passwords, not updated software and social engineering. The impact of a security breach varies and can catastrophic in some cases. There might be financial losses due to fraud, loss of sensitive financial data, loss of customer trust and damage to the company's reputation, legal consequences or penalties and serious operations' disruption. This study also mentions measures against the aforementioned, such as software updates, antivirus and firewalls, password policies, access controls and employees' training. Additional security controls are mentioned such as Multi Factor Authentication (MFA), data encryption and internal and external audits.

Another research from Yaacob, Idrus and Idris presents emerging technologies and technical challenges to manage cyber security risks. Emerging technologies mentioned are Fintech, Cloud Computing, AI and ML, IoT, Blockchain etc. Technical challenges in managing cyber security risks are among others the protection of sensitive data and applications, ensuring secure transactions, security of communication networks.

#### **2.4.2 Cost and maintenance**

The cost of equipment, infrastructure and software is undeniably a considerable expense for each company. These costs include provision and maintenance of equipment/ devices (computers, printers etc.), of hardware (e.g. servers) and software provision and licenses. Especially ERPs are very expensive, making them unreachable for some SMEs (R. P. Estébanez). Additionally, the cost of an ERP system is not one-off as there are also recurring fees such as licenses and maintenance (S. Mukherjee)

IT investments are a considerable expense, a fact that has led some people believe to the productivity paradox. According to S. Mukherjee the productivity paradox implies that IT investments do not increase productivity at least in the short run. Employees need to get trained and need time to get familiar with the new system and functionalities. Thus, improved productivity is expected in the long run. The paradox is also mentioned by Dr. P. Sridhar who states that IT innovations do not have a positive financial impact, but the improvement in productivity is on the benefit of the customer.

### **2.4.3 Dependence on technology**

Technology has made business information available almost from everywhere. Machines are broadly used as employees are requested to use several electronic devices such as personal computers, laptops, mobile phones while expansion of the Internet and cloud computing have offered opportunities to access business software and applications almost from everywhere. At the same time, it is impossible for some companies to operate if there is a system unavailability. For example, an Internet downtime in a company where employees work remotely or use Cloud applications will turn the company out of operation as no system will be available for use.

On top of this, the functionalities that accounting systems and ERPs offer, lead accountants not to practice basic accounting skills and thus rely on the systems.

### **2.4.4 Bias**

There is a threat in the use of results of modern technologies such as machine learning, and this threat is related to the training of machines by humans. Humans are biased and thus this characteristic of humans is possible to be transferred to the machines. According to C. Singh, R. Thakkar, R. Weerawarna and V. B. Patel, the quality of provided historical data and the possible lack of recent data may lead to production of unreliable results by machine learning. Additionally, they mention four types of human biases. Confirmation bias exists when using data trying to prove a pre-existing opinion while availability bias exists when the available data are used. The two remaining biases are confidence bias and anchoring bias. They conclude that bias may exist because of the data set used for the training, the used methodology and the interpretation of results.

Another research by A. Booker, V. Chiu, N. Groff and V. J. Richardson mentions several types of bias referencing to the seven types of bias suggested by H. Suresh and J. Guttag. These types are historical bias, representation bias, measurement bias, aggregation bias, learning bias, evaluation bias and deployment bias. A. Booker, V. Chiu, N. Groff and V. J. Richardson suggest that further research is needed to examine different types of bias that apply in accounting. Finally, S. Cho, M. Vasarhelyi, T. Sun, C. Zhang state that algorithmic bias is a limitation of machine learning.

#### **2.4.5 Lack Of Skills**

Accountants' training is oriented on how to perform accounting/finance related tasks than getting trained on the use of technology tools. As time passes, accountants spend less and less time on performing such tasks while they are requested to use new software and applications which demand from them to be familiar with technology. Additionally, their tasks are changed as they perform routine and repetitive tasks on a narrower scale as such tasks are getting automated and performed by machines. Accountants' new tasks contain tasks such as use of technology and data analysis.

The evolution of technology which replaces many accountants' tasks is considered a threat by many professionals while others see new opportunities. Based on Bhumika Gambhir and Anindita Bhattacharjee there is a shift on the skillset required from finance and accounting employees. Their research reveals that the skillset required in the future by low level management employees is basic accounting processes while the skillset that will be required by middle-level and top-level management employees is knowledge of data analytics and its tools.

#### **2.4.6 Elimination of jobs - Job displacement**

Advancements in technology have enabled the replacement of many tasks by machines and computers. Machines have replaced humans several times while many professions have been eliminated because of technology. Many accounting tasks are also replaced by technology. Research by Zamain and Subramanian, mentions that 800 million workers will lose their jobs by 2030 because of AI. Additionally, according to B. Gambhir and A. Bhattacharjee, AI and ML will cause unemployment but only temporarily. New skills will

be requested from accountants which will be related to strategic thinking and decision making. This means that in the long term there will be new opportunities for accountants.

#### **2.4.7 Complexity (extensive training needed)**

Accountants are not normally trained to use technology while some of them struggle to follow the evolution of technology. Employees in well-organized environments are needed to use numerous applications and have to follow technological advancements. According to S. Goumas, D. Charamis and E. Tabouratzi, the lack of IT skills leads to people not taking advantage of accounting software such as ERPs. Inability of firms to take advantage of their software is also mentioned by R. P. Estébanez. Additionally, Y. Raji and M. E. Dagunduro stated that new technologies such as Big Data have a negative impact on accountants' role due to the complexity of these tools and the additional skills needed to develop.

In the scope of this study, there will be investigation into accountants' opinions about their capability to use technology. Accountants' training needs will also be examined.

### **2.5 The new role of Accountant**

The changes that technology has brought to the operation of a business, and in this case in accounting departments, have led to modification of the tasks that an accountant performs. Accountants' tasks in the past were mostly operation tasks such as register transactions, making calculations, preparing tax statements, trial balances and balance sheets. Accounting software available on the market give the possibility to perform most of the aforementioned steps with significantly less effort. The role of accountant is changed as his tasks are now oriented towards the interpretation of data and reports.

There are several references in the literature about how accountants' profession is going to change because of the new technologies. N. Kroon, M. do Céu Alves and I. Martins prepared a systematic literature review about how emerging technologies impact accountants' role and skills. Technologies mainly examined are AI, Biga Data and Blockchain. Based on this study, the impact of these technologies on accounting roles and skills is not direct. Two steps are described. In the first step, emerging technologies cause changes in several tasks and on the way they are performed which means change on accounting profession. In the second step, functions performed by accountants need to change because of the changes

while new tasks may occur. As a result, the role of accountant is changed, and new skills are needed to perform the new and changed tasks.

Big Data is a technology that will affect the accounting profession as also presented by N. Younis. In his study he mentions that Big Data provides accountants with the opportunity to obtain strategic role in the organization and participate in decision making. By obtaining skills to analyze Big Data, accountants can become the link between data analysts and senior management. Accountants are unique in understanding structured data but obtaining skills on Big Data will make them an asset to analyze unstructured data. Thus, it is very important for accountants to obtain skills to interpret and analyze Big Data. This study indicates that there is a gap between IT departments and business departments which should be closed by accountants and finance professionals.

The impact of new technologies and especially of Big Data is presented also by Y. Raji and M. E. Dagunduro. According to this study, Big Data brings a revolution on data processing and on decision-making in accounting. However, the study implies that there are challenges related to the adoption of new technologies by accountants.

In their study, B. Gambhir and A. Bhattacharjee mention that new technologies such as AI are considered by some people as a threat but there is also an opportunity. Accountants can upgrade their skills and acquire knowledge in data analytics and its tools, soft skills and IT related skills. Based on this study the basic skills that will be required by top-level and middle-level management employees will be data analytics. The basic skill required by low-level management employees will be knowledge of basic accounting processes. On top of that, all employees should obtain soft skills. Additionally, it is estimated that finance employees will spend most of their time understanding and analyzing data. This research concludes that the use of AI will offer new opportunities in the long term. Accounting and finance employees should be trained to use AI tools and understand their outputs, and this should be considered mandatory knowledge. Additionally, companies should focus on providing such training to their employees and provide motives to the employees in this direction.

Another research by N. Zamain and U. Subramanian provides information about the future of accounting profession because of AI and ML evolution. This study highlights also the threat that accountants feel because of the replacement of their tasks by AI. However, it

mentions that the tasks are performed with greater accuracy by AI and ML and that this leads accountants to take over a consulting role. Accountants should take advantage of the opportunities and high-quality information that AI gives to them and focus on extensive analysis of financial statements. AI should be used as a tool to increase productivity. Finally this study presents an estimation about the impact of AI on jobs in UK. According to this, 7 million jobs will be lost because of AI but 7,2 jobs will be created, depicting that there will be increase in the number of jobs in accounting.

Similar perception is observed in the study of J. Kommunuri. According to this study AI does not replace humans but complements them. AI performs tasks to fast and with accuracy aiming to enhance capabilities of accountants. Accountants, by their side, should restructure their processes to take advantage of AI benefits. Finally, this study suggests that accounting firms should embrace AI instead of waiting and build on their strengths and develop strategies to implement AI-enabled environments.

Considering the aforementioned, it is obvious that evolution of technology affects the role and tasks of accountants. Accountants should use new technological tools to complement their work and to face new technology as a threat. The role of accountant is expected to change and instead of spending time performing repetitive and routine tasks, accountants should use new tools to analyze report results and become the link between Business and IT, become a business advisor and acquire a consultive role.

## 3 Research

### 3.1 Research Methodology

In the scope of this dissertation a questionnaire has been constructed and used to examine the impact of technology on accounting as accountants perceive and on their expectations on the future of their profession because of technology.

According to K. Kishore, V. Jaswal, V. Kulkarni, D. De there are seven steps on how to construct a questionnaire:

- Step 1: Item Generation
- Step 2: Item Formatting
- Step 3: Preliminary Questionnaire
- Step 4: Validation
- Step 5: Pilot Testing
- Step 6: Data Collection
- Step 7: Evaluation

Similar steps on how to prepare a questionnaire are also presented by Hamed Taherdoos. These are the following:

1. **Information needs:** There are two types of research questions, research questions and hypotheses. Hypotheses uses different assumptions for the reason or solution of a problem while research questions aim to face a problem without applying assumptions.
2. **Survey type:** As also mentioned by Saunders et al. (2005) the following types: Self-administered questionnaires and interviewer administered. Self-administered questionnaires include online, postal, delivery and collection questionnaires while interviewer administered questionnaires include telephone questionnaires and structured interview.
3. **Types of questions:** There are several types of questions to be used. The first type is Open-Ended and Closed-Ended Questions. Rating and scaling of the questions need to be decided. Rating includes matrix type, ranking type and scaling type questions. Scaling includes Thurstone, Guttman and Likert scaling.

The second point in this step is to decide the types of responses which include Yes/No responses, single or multiple responses, neutral responses, “don’t know” responses and demographics-based and filter questions.

The third part of this step is the wording of questions. Aspects such as short and clear questions, unbiased questions, not negative etc. should be considered in this step.

4. **Writing questions:** This step includes preparing the introduction where the purpose of the study is depicted. The second part is to optimize the order of questions.
5. **Organizing:** This concerns the physical appearance of the questionnaire. This includes the font of the content, the instructions and the pre-coding of answers.
6. **Pre-Testing:** Perform the survey with a small number of participants.
7. **Finalizing:** Perform iterations and any rewriting needed. In this step it should be examined whether the questionnaire addresses the needed information.

### 3.2 Purpose of research

Based on the literature review, performed above, there are several benefits for accounting from appliances of technology. Accountants generally do not have IT-related training and may find it difficult to follow technological advancements. Some of them may see the benefits from modern technologies such as AI and Big Data while others may fear for their fortune. Some of these questions are aimed at being answered by this questionnaire.

The purpose of this research is to investigate the following:

1. Do accountants perceive technology as a threat, or do they embrace it positively?
2. Do accountants understand the benefits and challenges of new technologies that were identified in literature?
3. Are accountants aware of the benefits of the latest technologies (Big Data, AI) in their profession?

### 3.3 Research Steps

Steps mentioned by H. Taherdoos at the beginning of this chapter have been followed for this questionnaire. The information needed will be collected by using research questions, not hypothesis. The survey has been performed self-administered and has been distributed online. The questions used are of several types. In general, the questions were closed-ended

but in very few questions there was an open-ended option. Matrix type and ranking type questions have been used and the scaling used is Likert scaling. Regarding the responses there have been of several types combining single and multiple responses, neutral responses, “don’t know” responses and demographic-based questions (ranges). Additionally, importance was paid to the wording of questions. The questions used were not long and had a clear meaning. There were not double negative questions while there have been short examples in terms that were considered not-known to respondents.

As far as the organization of the questionnaire is concerned, an introduction page has been created, informing the respondents of the topic and purpose of the questionnaire and on the anonymity of the respondent. Furthermore, the questionnaire has been divided in three parts. The first part contained demographic questions which are considered easier. The second part contained questions about the adoption of technology by accountants and their perception about future changes and their technological training. The last part of the questionnaire contained more difficult questions asking explicitly about the benefit and weaknesses of specific technologies.

The next step of the questionnaire was to organize a pilot-run to test the questionnaire’s quality. The questionnaire was distributed to six respondents. Based on their responses, corrective actions have taken place.

## 4 Research Results

In this chapter, the results of the questionnaire will be presented and interpreted. The questionnaire has been answered by 96 respondents, 88 of which have responded online and 8 have responded in manually distributed questionnaires. Manually distributed questionnaires have been incorporated in the online collected questionnaires. The data has been analyzed using SPSS.

### 4.1 Descriptive statistics

Demographic data is the first part of the questionnaire and contains question 1 to question 7. The first question about gender reveals that out of 96 respondents, 58 (60,42%) were women and 38 (39,58%) were men as displayed in Table 4-1 and Figure 4-1.

1. Gender			
		Frequency	Percent
Valid	Female	58	60.42
	Male	38	39.58
	Total	96	100.0

**Table 4-1: Question 1 statistics**

Gender

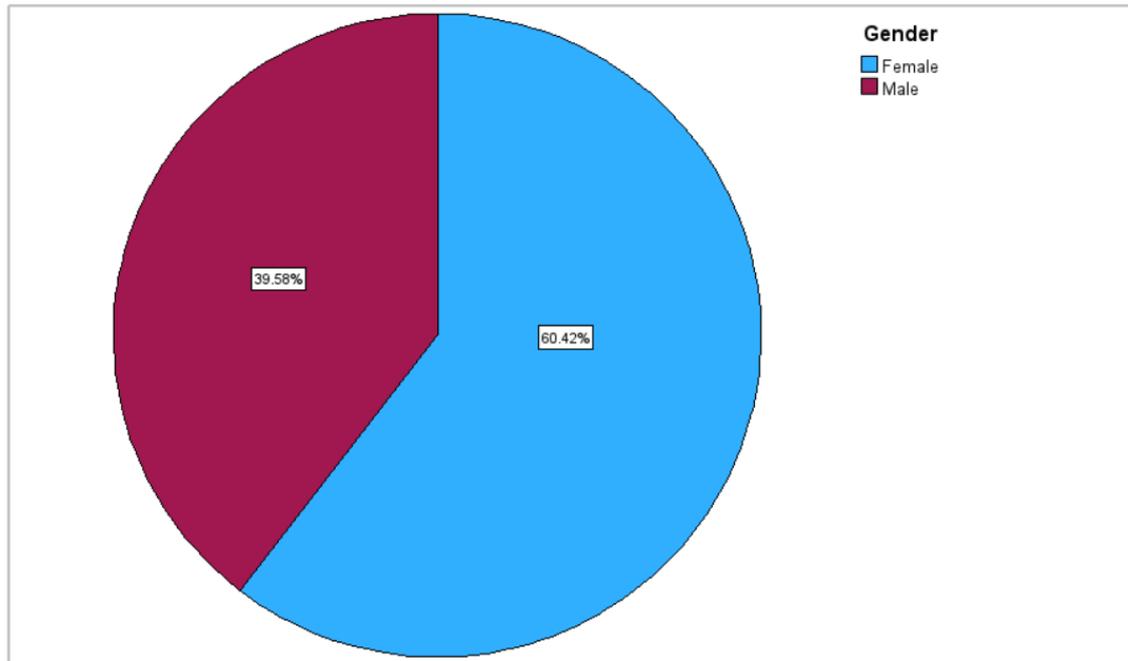


Figure 4-1: Question 1 pie chart

The next question about age reveals that 8 (8,33%) of them are between 18 and 29 years old, 29 (30,21%) are of age between 30 and 39, 42 respondents (43,75%) have age between 40 and 49, 15 (15,63%) are between 50 and 59 and 2 (2,08%) of them are over 60. Results are displayed in Table 4-2 and Figure 4-2.

2. Age			
		Frequency	Percent
Valid	18-29	8	8.33
	30-39	29	30.21
	40-49	42	43.75
	50-59	15	15.63
	>60	2	2.08
	<b>Total</b>	96	100.0

Table 4-2: Question 2 statistics

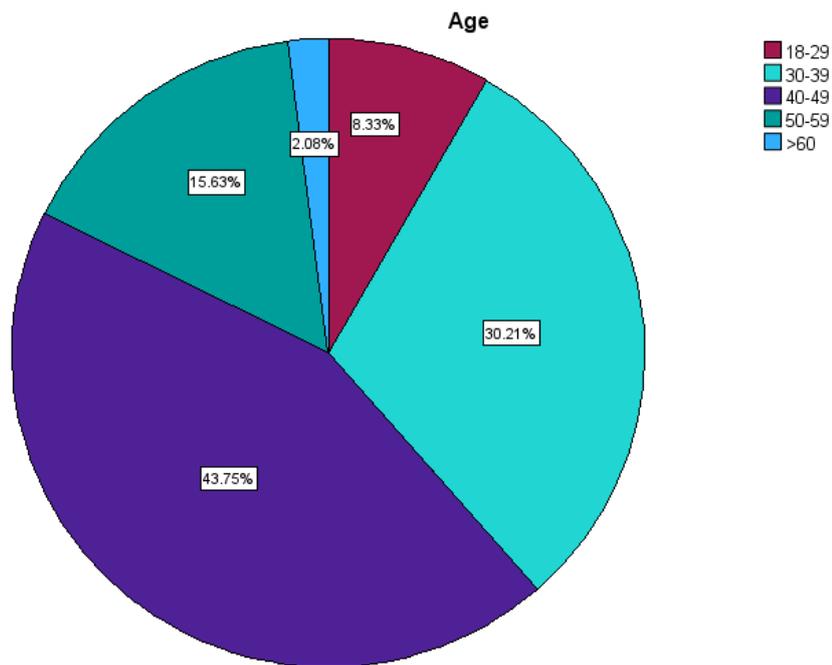
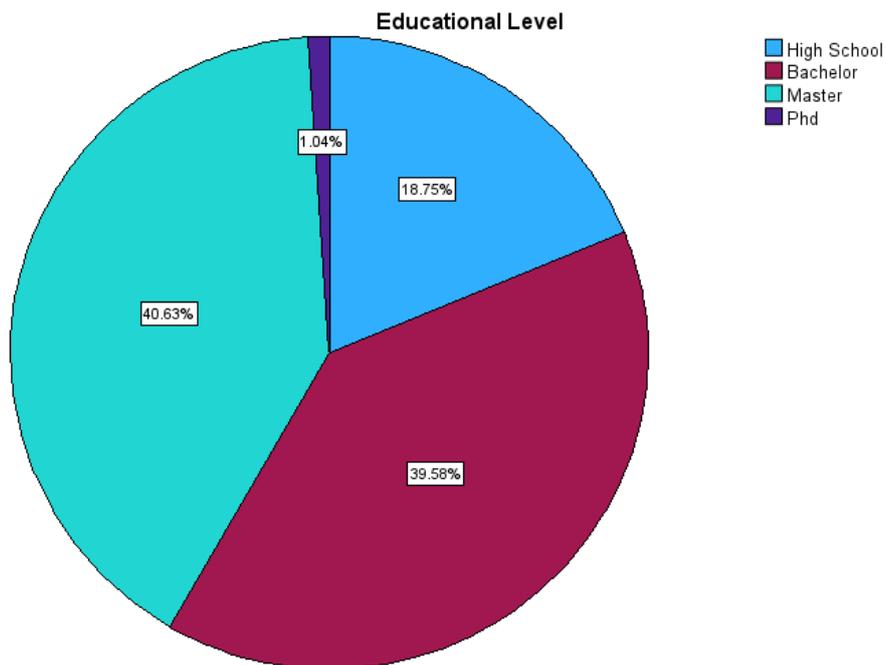


Figure 4-2: Question 2 pie chart

Question about education reveals that 18 (18,75%) of the respondents have finished high school, 38 (39,58%) hold a bachelor's degree, 39 (40,63%) hold a master's degree and 1 respondent (1,04%) holds a PhD. Results are displayed in Table 4-3 and Figure 4-3.

3. Educational Level			
		Frequency	Percent
Valid	High School	18	18.75
	Bachelor	38	39.58
	Master	39	40.63
	PhD	1	1.04
	<b>Total</b>	96	100.0

Table 4-3: Question 3 statistics



**Figure 4-3: Question 3 pie chart**

Question about experience in accounting reveals that 44 (45,83 %) of the respondents work in accounting areas less than 10 years, 30 (31,25%) work 11 to 20 years in accounting, 19 (19,79%) of them work 21 to 30 years in accounting and 3 respondents (3,13%) work more than 30 years in accounting area. Results are displayed in Table 4-4 and Figure 4-4.

4. Years of experience in accounting			
		Frequency	Percent
Valid	1-10	44	45.83
	11-20	30	31.25
	21-30	19	19.79
	>30	3	3.13
	<b>Total</b>	96	100.0

**Table 4-4: Question 4 statistics**

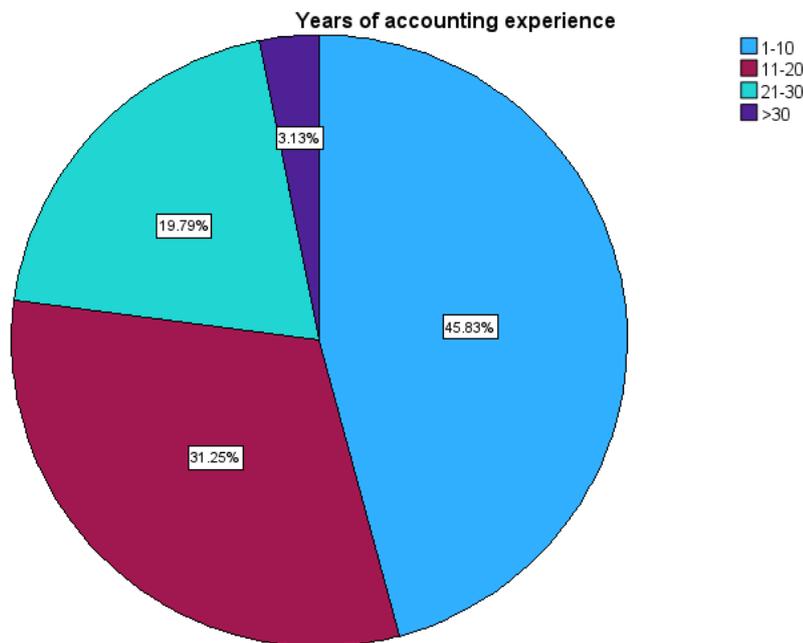


Figure 4-4: Question 4 pie chart

Fifth question about the number of employees in the company the respondents work for reveals that 9 (9,38 %) work in companies with less than 10 employees, 11 (11,46%) work in companies with 11 to 50 employees, 9 (9,38%) work in companies with 51 to 100 employees, 4 (4,17%) work in companies with 101 to 200 employees and 63 (65,63%) work in companies with more than 200 employees. Results are displayed in Table 4-5 and Figure 4-5.

5. Years of experience in accounting			
		Frequency	Percent
Valid	<10	9	9.38
	11-50	11	11.46
	51-100	9	9.38
	101-200	4	4.17
	>200	63	65.63
	<b>Total</b>	96	100.00

Table 4-5: Question 5 statistics

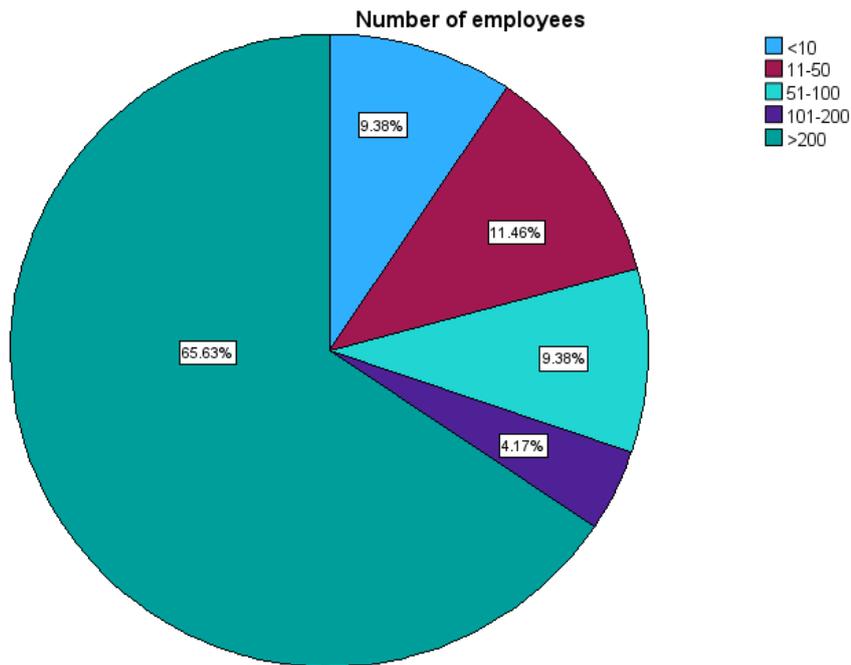


Figure 4-5: Question 5 pie chart

Next question is about employment status. 62 of the respondents (64,58%) replied that they are accounting employees, 29 of them (31,25%) replied that they work as accounting executive/ supervisor/ director and 5 (5,21%) replied that they work as self-employed or other role such as auditor, finance reporting etc. Results are displayed in Table 4-6 and Figure 4-6.

6. Employment Status			
		Frequency	Percent
Valid	Accounting Employee	62	64.58
	Accounting Executive	29	31.25
	Other (Self-Employed, External Auditor, Fnance etc.)	5	5.21
	Total	96	100.0

Table 4-6: Question 6 statistics

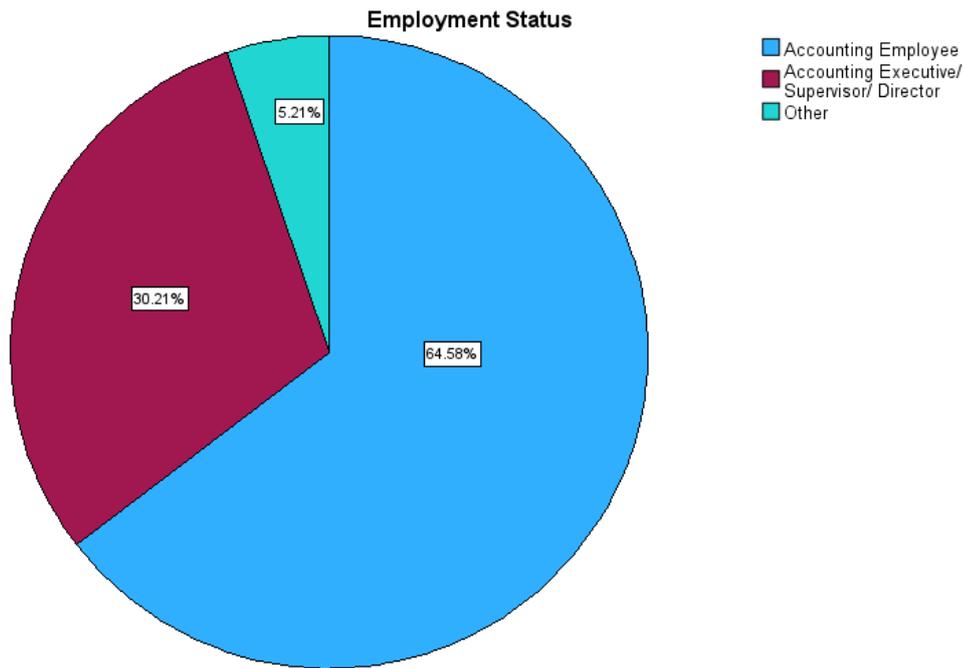


Figure 4-6: Question 6 pie chart

The last question concerned respondents' accounting activities. This was a multiple-choice question. Most of the activities of respondents are related to "Accounts Payables/ Receivables" with percentage 27,23%, "Financial Reporting & Financial Analysis" with percentage 22,51%, "Journal Entries" with percentage 19,37%, "Budgeting and Forecasting" with percentage 10,99%, "Tax accounting" with percentage 16,75% and the rest of the categories gathered 3,15%. Results are displayed in Table 4-7 and Figure 4-7.

7. My work activities/ tasks are related to:			
		Frequency	Percent
Valid	Accounts Payables/ Receivables	52	27.23
	Budgeting and Forecasting	21	10.99
	Financial Reporting & Financial Analysis	43	22.51
	Journal Entries	37	19.37
	Tax Accounting	32	16.75

	<b>Audit</b>	1	0.52
	<b>Finance Network Support</b>	1	0.52
	<b>Partner Service</b>	1	0.52
	<b>Payroll</b>	2	1.05
	<b>Regulatory</b>	1	0.52
	<b>Total</b>	191	100.0

Table 4-7: Question 7 statistics

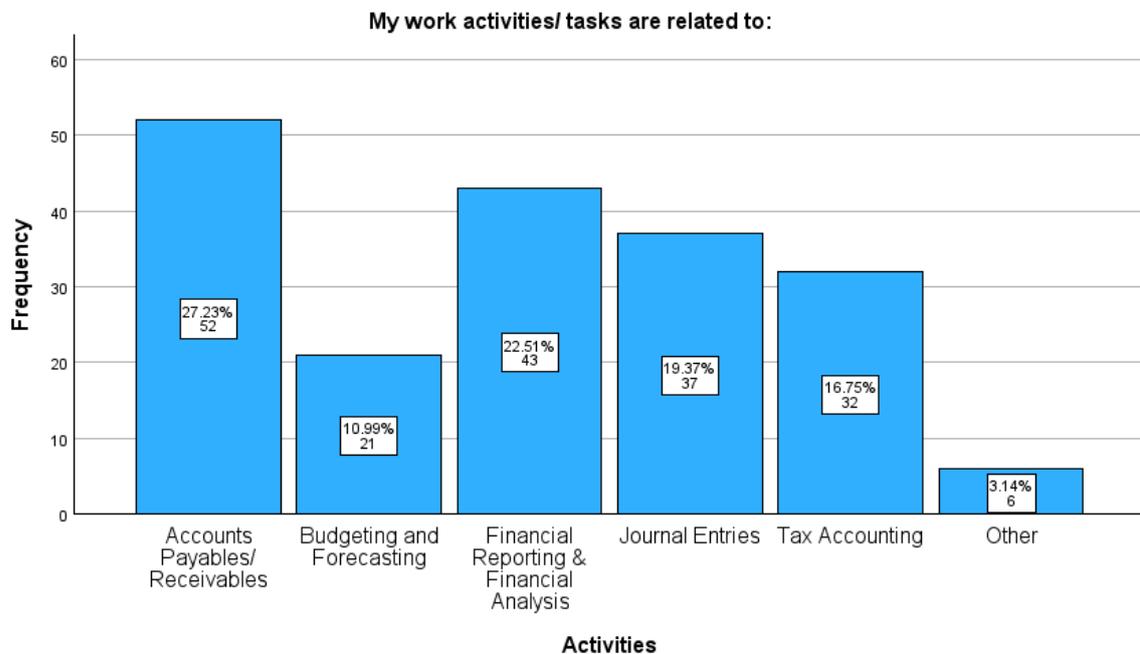


Figure 4-7: Question 7 histogram

The next block of questions, which contains question 8 to question 16, concerned the adoption of technology for accounting purposes. Question 8 is about the technologies that respondents currently use for accounting purposes. The options provided for respondents are tools that are more commonly used by accounting departments and multiple choices were possible. As expected, the technology/ application with the highest score of 44,1% was the ERP systems, followed by e-invoicing software with percentage 18,97% and cloud accounting software with percentage 16,41%. Automation tools gathered a percentage of 13,33% followed by Artificial Intelligence (AI) and Machine Learning (ML) tools with

6,15%. Low percentage of AI and ML is expected as these technologies have been developed lately. The last option of CRM applications has been chosen by only 1,03% which is also expected as CRMs are not usually used by accountants. The results are displayed in Table 4-8 and histogram in Figure 4-8.

<b>8. Which of the following technologies/ tools do you or your organization currently use for accounting purposes? (Select all that apply)</b>			
		<b>Frequency</b>	<b>Percent</b>
<b>Valid</b>	<b>Artificial Intelligence /Machine Learning tools</b>	12	6.15
	<b>Automation tools</b>	26	13.33
	<b>Cloud accounting software</b>	32	16.41
	<b>CRM</b>	2	1.03
	<b>E-invoicing software</b>	37	18.97
	<b>ERP systems</b>	86	44.10
	<b>Total</b>	195	100.0

**Table 4-8: Question 8 statistics**

Which of the following technologies/ tools do you or your organization currently use for accounting purposes?  
(Select all that apply)

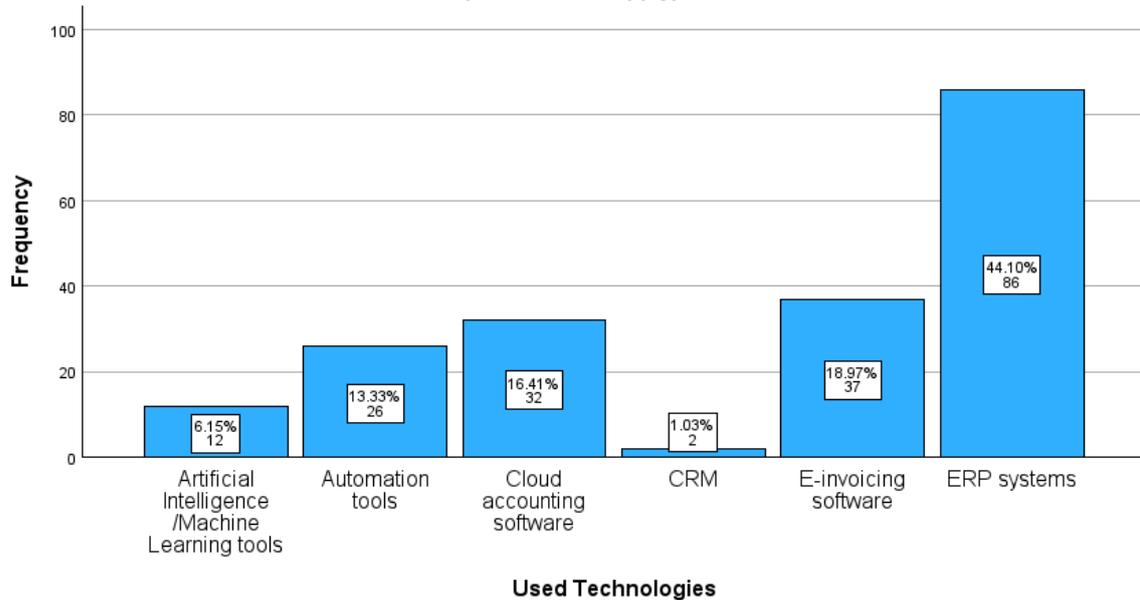


Figure 4-8: Question 8 histogram

Following 8 questions use Likert scale and provide to respondents to choose between options “Strongly disagree”, “Disagree”, “Neutral”, “Agree” and “Strongly agree”.

Question number 9 asks respondents if they are properly trained to use the accounting tools of their company. Most of the respondents believe that they have adequate training to do so, as 21 respondents (21,88%) replied “Strongly agree” and 51 (53,13%) replied “Agree”. 22 of the respondents (22,92%) replied “Neutral” and only 2 (2,08%) replied “Disagree” and “Strongly disagree”. Results are displayed in Table 4-9 and Figure 4-9.

9. I am properly trained to use accounting tools of my company (e.g. ERP).			
		Frequency	Percent
Valid	Strongly disagree	1	1.04
	Disagree	1	1.04
	Neutral	22	22.92
	Agree	51	53.13

	<b>Strongly Agree</b>	21	21.88
	<b>Total</b>	96	100.00

Table 4-9: Question 9 statistics

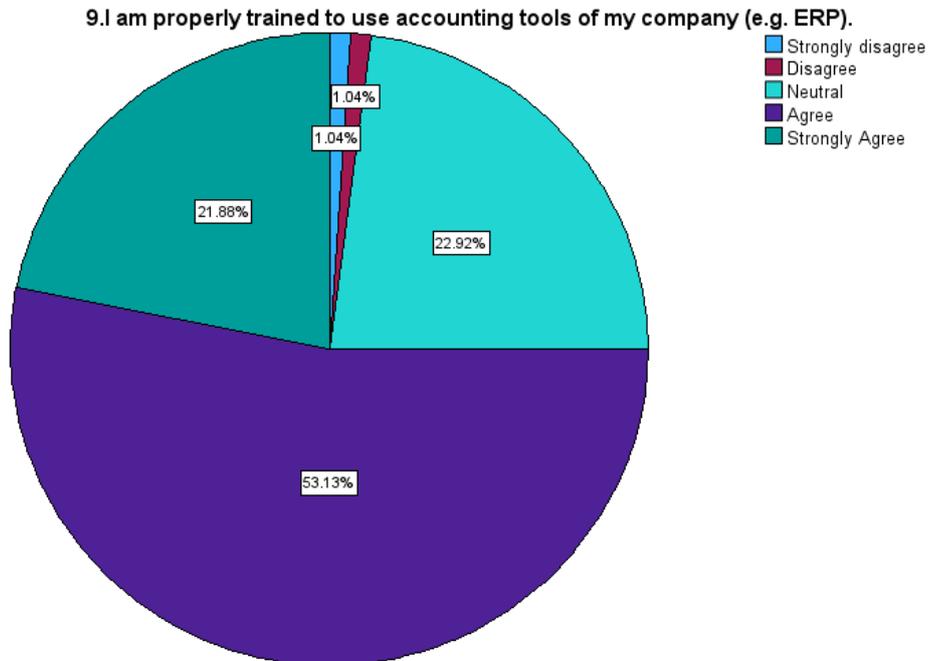


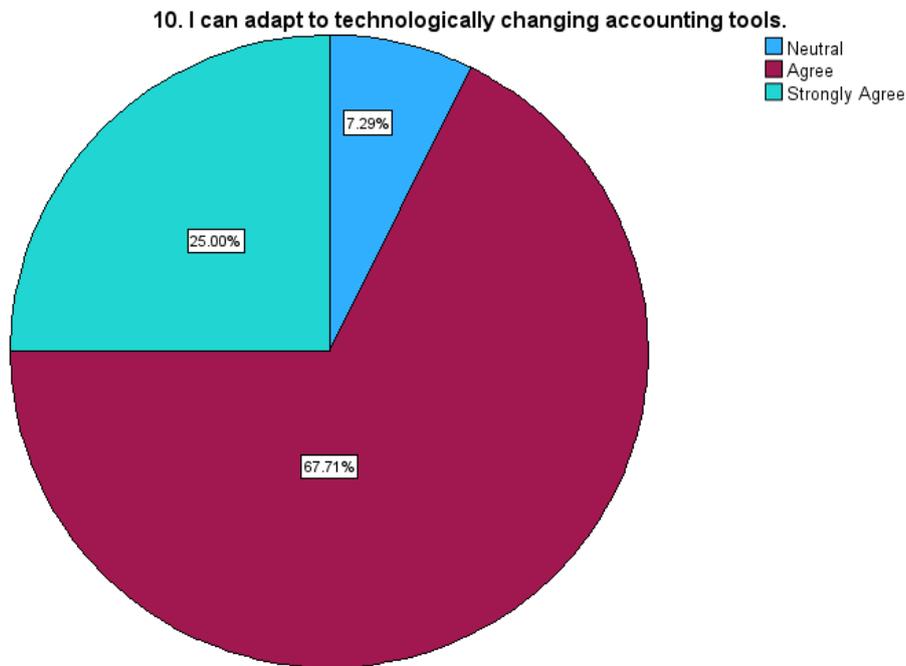
Figure 4-9: Question 9 pie chart

Question 10 concerns the perception that respondents have about their ability to adapt to technological changes. Most of the respondents believe that they can adapt to technological changes as 24 respondents (25%) replied that they “Strongly agree”, 65 respondents (67,71%) replied that they “Agree” and 7 respondents (7,29%) replied “Neutral”. It is impressive that none of the respondents has replied “Strongly disagree” or “Disagree”. Results are displayed in Table 4-10 and Figure 4-10.

<b>10. I can adapt to technologically changing accounting tools.</b>			
		<b>Frequency</b>	<b>Percent</b>
<b>Valid</b>	<b>Neutral</b>	7	7.29
	<b>Agree</b>	65	67.71

	<b>Strongly Agree</b>	24	25.00
	<b>Total</b>	96	100.00

**Table 4-10: Question 10 statistics**



**Figure 4-10: Question 10 pie chart**

Question 11 is to examine if the respondents believe that they would be more efficient in their work if they had information technology related education. 22 of the respondents (22,92%) replied that the “Strongly agree” and 45 (46,88%) replied that they “Agree”. 24 (25%) replied “Neutral” and 5 (5,21%) replied “Disagree”. None of the respondents has replied “Strongly disagree”. The responses in this question indicate that accountants consider technological education/ training crucial to their performance. Results are displayed in Table 4-11 and Figure 4-11.

<b>11. I could be more efficient at my work if I had information technology related education.</b>			
		<b>Frequency</b>	<b>Percent</b>
<b>Valid</b>	<b>Disagree</b>	5	5.21
	<b>Neutral</b>	24	25.00

	<b>Agree</b>	45	46.88
	<b>Strongly Agree</b>	22	22.92
	<b>Total</b>	96	100.00

Table 4-11: Question 11 statistics

11. I could be more efficient on my work if I had information technology related education.

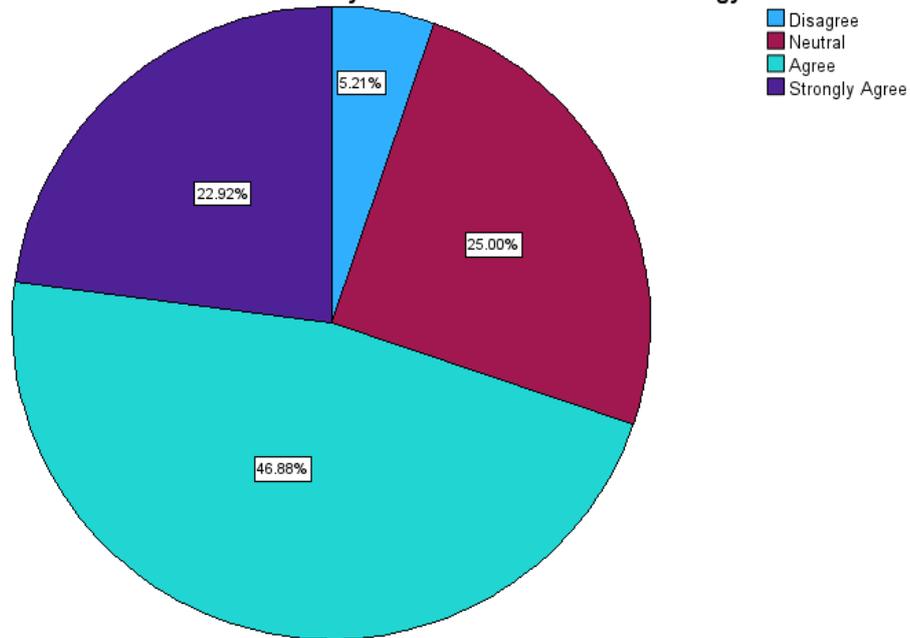


Figure 4-11: Question 11 pie chart

Question 12 is about the increased complexity of accounting tools. The responses were divided in this question. 4 respondents (4,17%) replied that they “Strongly disagree” and 35 (36,46%) replied that they “Agree”. 19 respondents (19,79%) replied “Neutral”, 33 replied (34,38%) replies “Disagree” and 5 (5,21%) replied “Strongly disagree”. Results are displayed in Table 4-12 and Figure 4-12.

12. Technology has increased the complexity of accounting tools.			
		Frequency	Percent
Valid	Strongly disagree	5	5.21
	Disagree	33	34.38

	<b>Neutral</b>	19	19.79
	<b>Agree</b>	35	36.46
	<b>Strongly Agree</b>	4	4.17
	<b>Total</b>	96	100.00

Table 4-12: Question 12 statistics

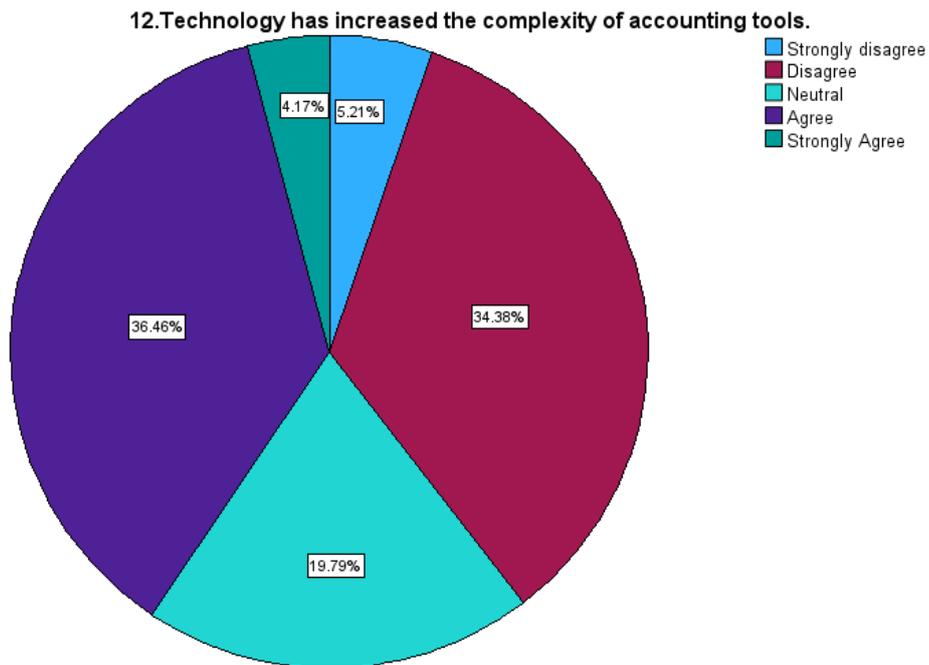


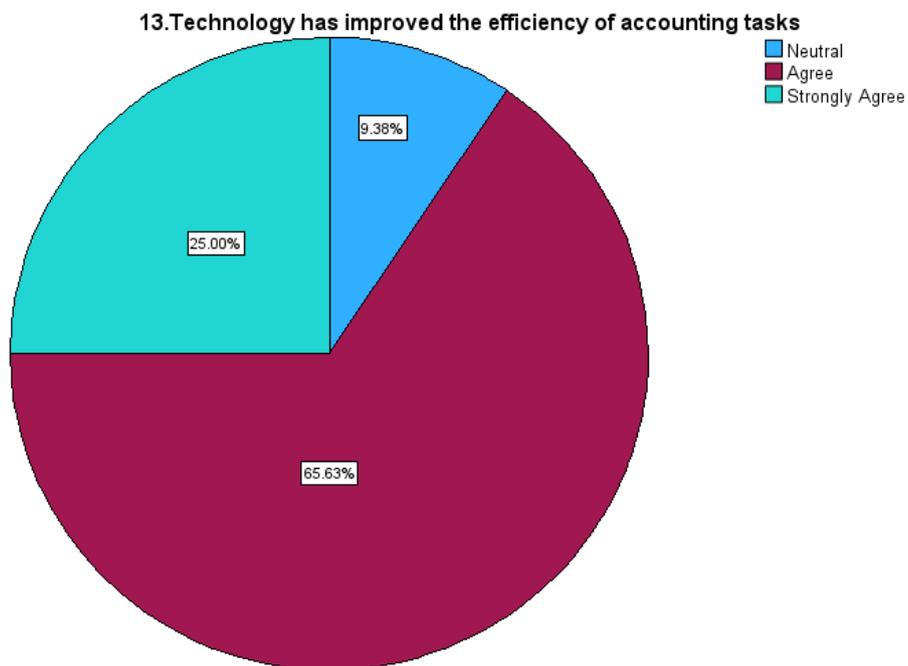
Figure 4-12: Question 12 pie chart

Question 13 is about improved efficiency of accounting tasks because of technology. The replies in this question indicate that most of the respondents agree that accounting tasks are improved because of appliance of technology as 24 respondents (25%) replied “Strongly agree” and 63 (65,63%) replied “Agree”. 9 respondents (9,38%) replied “Neutral” of there was no answer for “Disagree” to “Strongly disagree”. Results are displayed in Table 4-13 and Figure 4-13.

**13. Technology has improved the efficiency of accounting tasks.**

		Frequency	Percent
<b>Valid</b>	<b>Neutral</b>	9	9.38
	<b>Agree</b>	63	65.63
	<b>Strongly Agree</b>	24	25.00
	<b>Total</b>	96	100.00

**Table 4-13: Question 13 statistics**



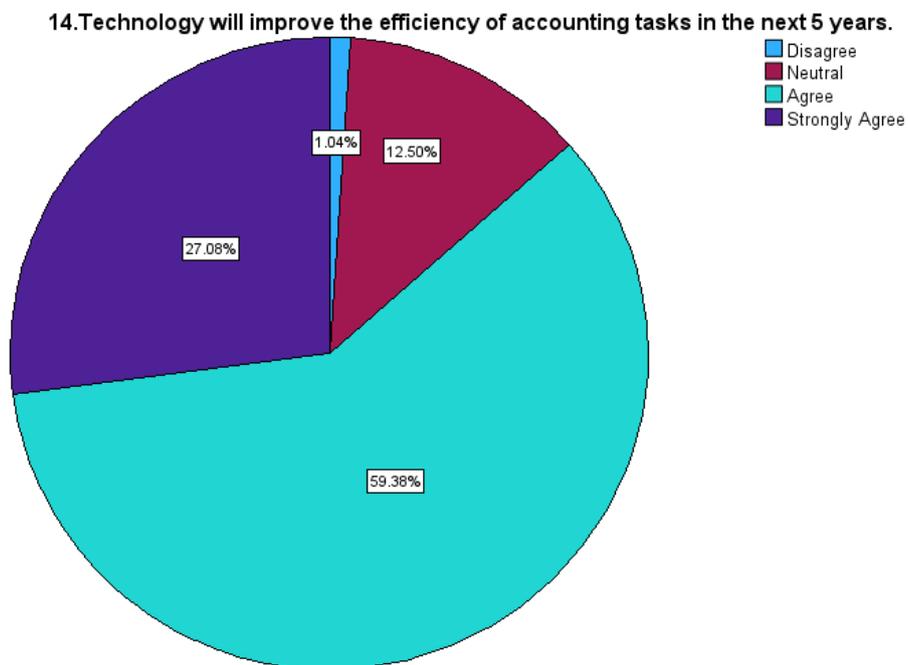
**Figure 4-13: Question 13 pie chart**

Question 14 is about further improvement of accounting tasks in the next 5 years because of technology. Most of respondents see further improvement in the next 5 years as 26 (27,08%) replied “Strongly Agree” and 57 (59,38%) replied “Agree”. There is also a notable part of respondents that do not know whether there will be improvement and thus 12 (12,5%) replied “Neutral”. Finally, 1 (1,04%) has replied “Disagree”. Results are displayed in Table 4-14 and Figure 4-14.

**14. Technology will improve the efficiency of accounting tasks in the next 5 years.**

		Frequency	Percent
<b>Valid</b>	<b>Disagree</b>	1	1.04
	<b>Neutral</b>	12	12.50
	<b>Agree</b>	57	59.38
	<b>Strongly Agree</b>	26	27.08
	<b>Total</b>	96	100.00

**Table 4-14: Question 14 statistics**



**Figure 4-14: Question 14 pie chart**

Question 15 aims to investigate whether the accountants believe that the traditional accounting role will become obsolete in the future. A big part of the respondents believe that accountant role will change as 5 (5,21) replied “Strongly agree” and 40 (41,67%) replied “Agree”. However, the percentages of those who replied “Neutral” and “Disagree” are high as 26 (27,08%) replied “Neutral” and 20 (20,83%) replied "Disagree". Finally, 5 (5,21%) have replied “Strongly disagree”. Results are displayed in Table 4-15 and Figure 4-15.

15. Traditional accounting role will become obsolete due to technology.			
		Frequency	Percent
Valid	Strongly disagree	5	5.21
	Disagree	20	20.83
	Neutral	26	27.08
	Agree	40	41.67
	Strongly Agree	5	5.21
	<b>Total</b>	96	100.00

Table 4-15: Question 15 statistics

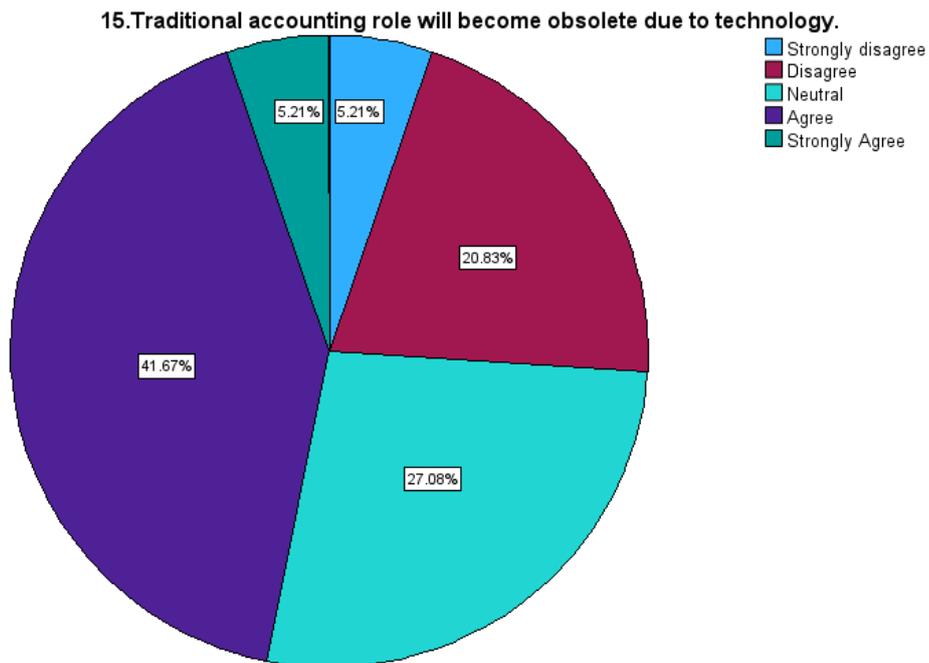


Figure 4-15: Question 15 pie chart

The last question of this part is question 16, which aims to investigate if accountants feel that their work is threatened because of technology. In other words, it wants to investigate if accountants believe that they will be replaced by technology. The responses are divided, but the majority feels threatened by technology as 6 (6,25%) replied “Strongly Agree” and 36 (37,5%) replied "Agree”. Additionally, 20 (20,83%) replied “Neutral”. Lastly, 31

(32,29%) replied “Disagree” and 3 (3,13%) replied "Strongly disagree”. Overall, the number of respondents that believe that accountants’ work is threatened by technology is greater than those who believe it doesn’t. Results are displayed in Table 4-16 and Figure 4-16.

16. The evolution of technology threatens accountants' work.			
		Frequency	Percent
Valid	Strongly disagree	3	3.13
	Disagree	31	32.29
	Neutral	20	20.83
	Agree	36	37.50
	Strongly Agree	6	6.25
	<b>Total</b>		96

Table 4-16: Question 16 statistics

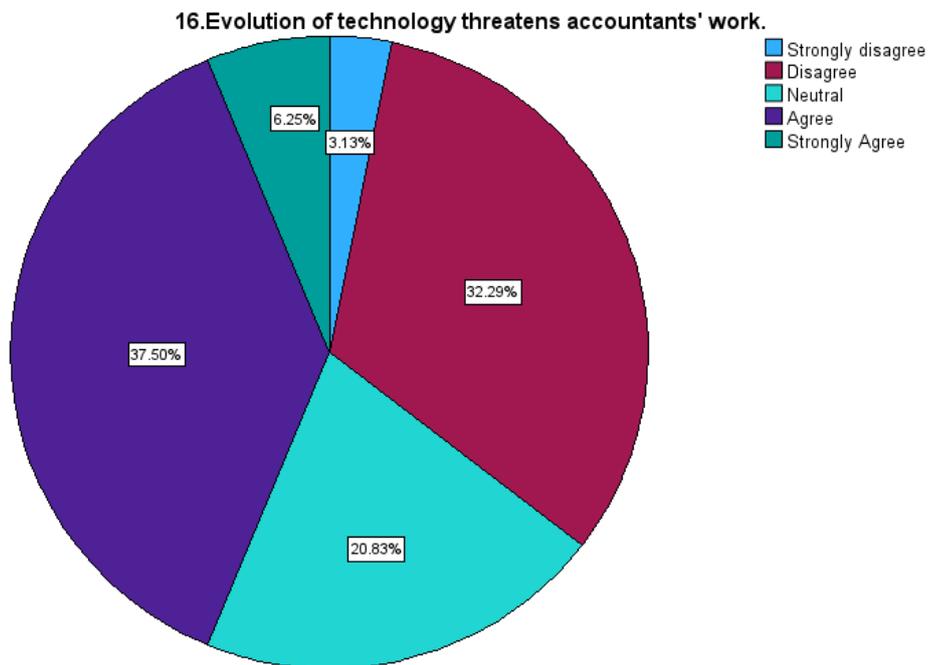


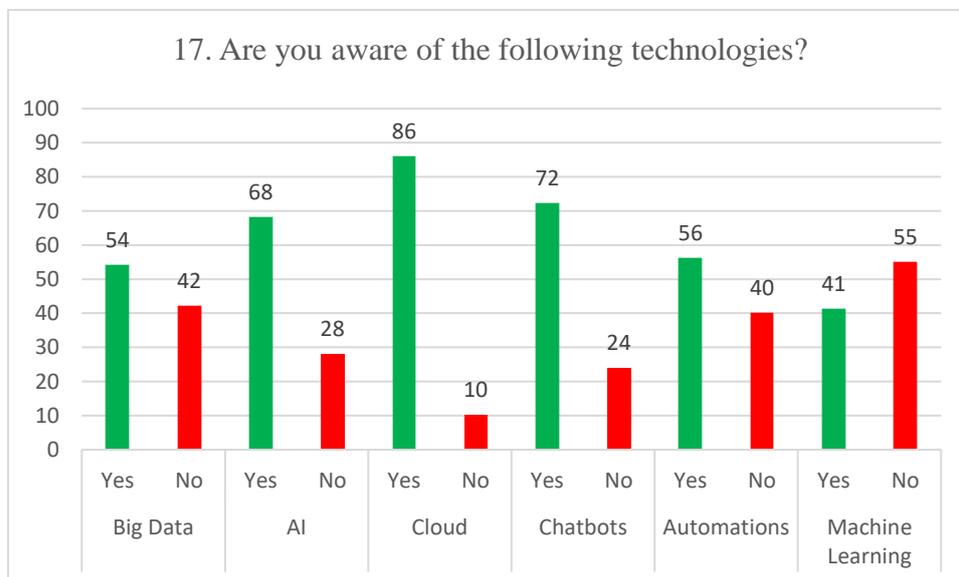
Figure 4-16: Question 16 pie chart

The third part of the questionnaire consists of 5 questions (question 17 to 21) and aims to investigate the knowledge that accountants have on technologies and especially on the latest developed technologies and the benefits and weaknesses of appliance of technology. The

scale used in these questions is “Yes”/ “No” or three options ‘Yes’/ “No”/ “I do not know/ I do not answer” or “Very Much”/ “Moderate”/ “Not at all”.

Question 17 mentions several technologies and requests of respondents if they are aware of these technologies. The selected technologies for these questions are technologies that have great impact or are expected to have great impact on accounting profession. Machine learning (ML), chatbots and automations are mentioned separately despite they are subcategories of Artificial Intelligence as it is expected to have different answers for each of them. Automations are already used in several cases while ML is recently used while its use may not be known to the end-user.

The technology that is most known to the respondents is Cloud as there were 86 (89,58%) “Yes” replies. Chatbots are second in the line with 72 (75%) “Yes” responses followed by AI with 68 (70,83%). Additionally, 56 respondents (58,33%) replied that they are aware of “Automations” technology and 54 (56,25%) that are aware of “Big Data”. Finally, only 41 (42,71%) replied that they are aware of Machine Learning. Machine Learning was also the only category where the “No” answers exceeded the “Yes” ones. Results are displayed in Figure 4-17 and Table 0-1 in Appendix B.



**Figure 4-17: Question 17 histogram**

Question 18 investigates whether the technologies of the previous questions are used by accountants or not. In this question, respondents have also the option to choose “I do not know/ I do not answer”. The most used technologies are Cloud (73,96%), Chatbots

(44,79%) and Automations (43,75%). The technologies that are not used with greater responses are machine learning (59,38%), AI (55,21%) and Big Data (43,75%). Finally, there were some answers “I do not know/ I do not answer” about technologies of Big Data (23,96%), AI (17,1%), automations (19,79%) and machine learning (21,88%). Results are displayed in Figure 4-18 and Table 0-2 in Appendix B.

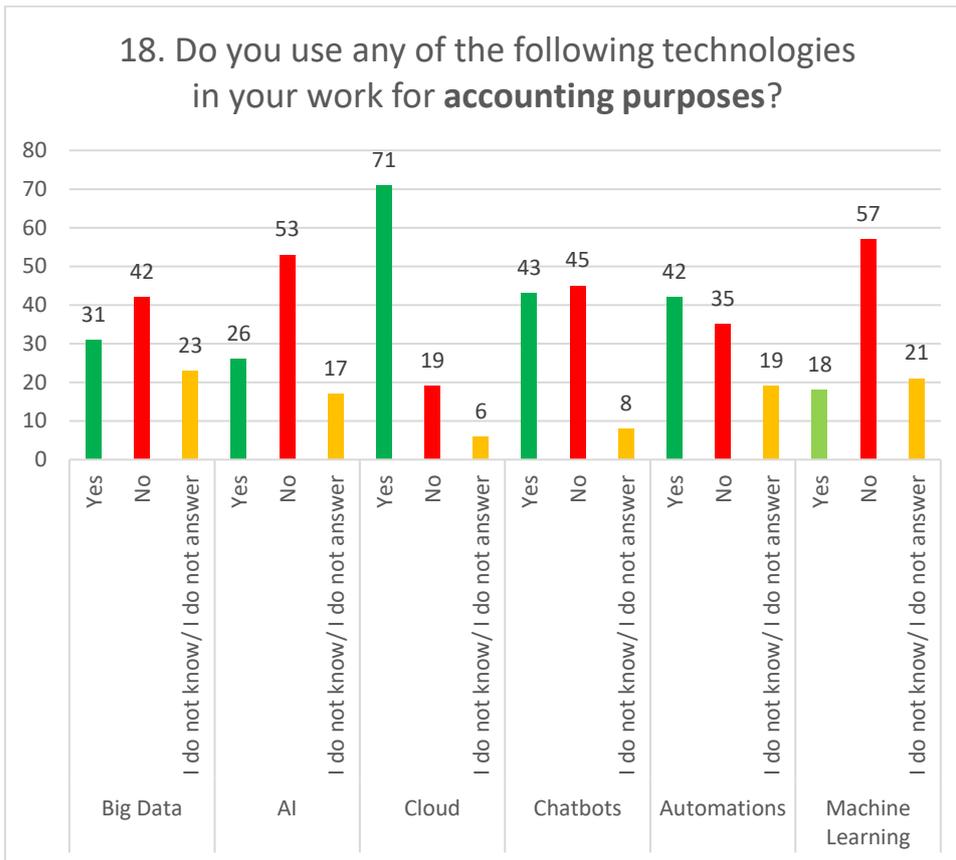


Figure 4-18: Question 18 histogram

In question 19, respondents are asked whether they expect the aforementioned technologies to bring improvement in accounting processes in the future. Respondents expect that all of the technologies mentioned will bring improvement in the future with highest percentage 81,25 for Cloud and lowest percentage 62,5% for Machine learning. There were very few “No” answers while there have been some “I do not know/ I do not answer” mainly for Big Data (28,13%) and Machine Learning (28,13%). Results are displayed in Figure 4-19 and Table 0-3 in Appendix B.

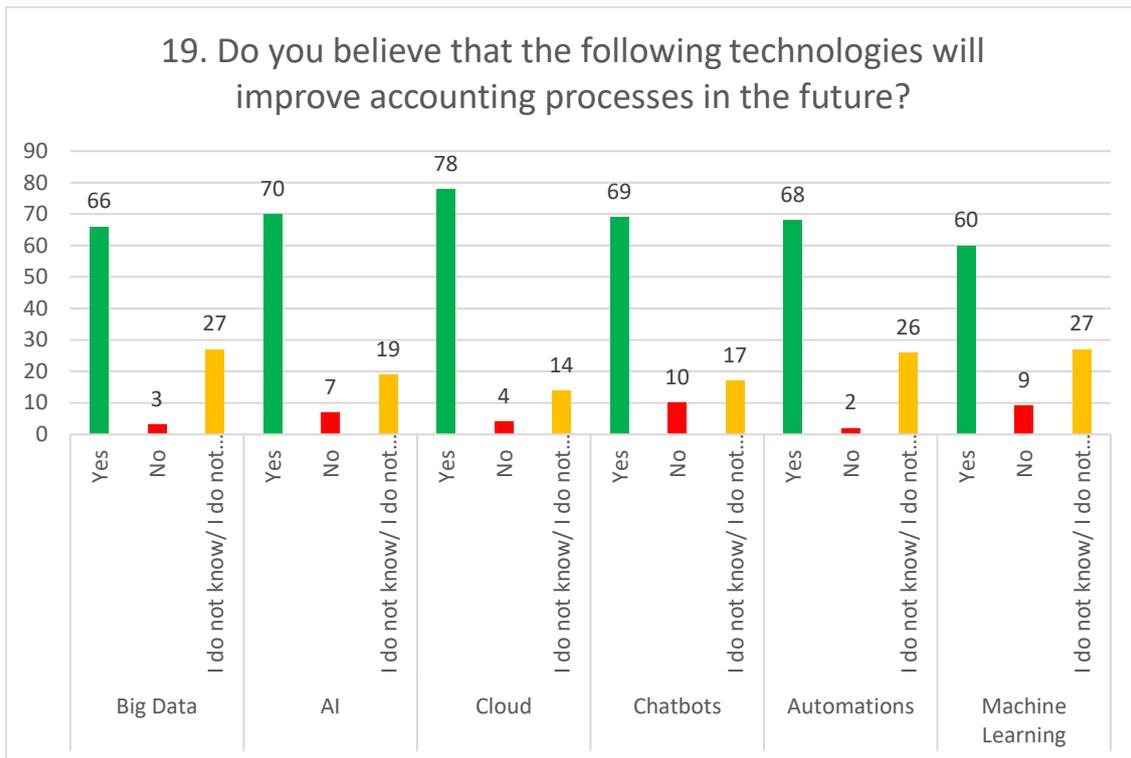
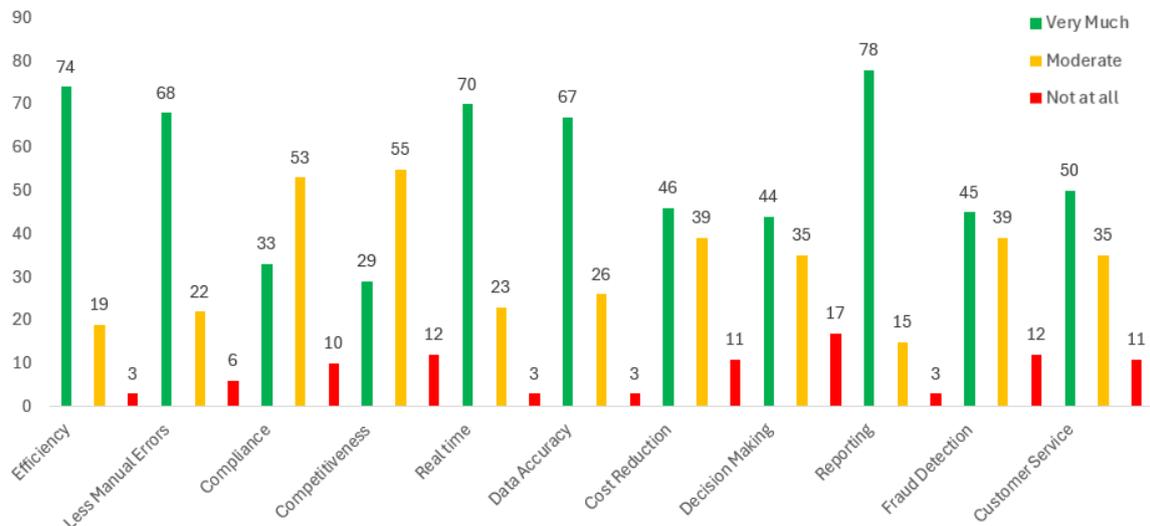


Figure 4-19: Question 19 histogram

Question 20 is about the benefits in accounting because of technology as perceived by accountants. The benefits examined are efficiency, less manual errors, compliance, competitiveness, real-time information, data accuracy, cost reduction, decision-making, reporting, fraud detection and customer service. Respondents have three options “Very Much”, “Moderate” and “Not at all”. Respondents have replied “Very much” in most of the categories with improved reporting to be voted by 78 participants (81,25%). Reporting is followed by efficiency (77,08%), real-time information, less manual errors (70,83%) and data accuracy (69,79%). The greater votes about “Moderate” were found in categories Competitiveness (57,29%) and Compliance (55,21%) followed by cost reduction (40,63%), fraud detection (40,63%), customer service (36,46%) and decision making (36,46%). Finally, there were a few “Not at all” answers mainly in decision making (17,71%). However, based on the literature review, decision making is greatly benefited by evolution of technologies. Results are displayed in Figure 4-20 and Table 0-4 in Appendix B.

**20. To what extent are accounting processes improved with the use of technology in the following categories?**



**Figure 4-20: Question 20 histogram**

The last question of this questionnaire is about the weaknesses of technology. The categories to be investigated are complexity, data security - data breaches - data privacy, dependence on technology, cyber security risks, cost and maintenance of technology, lack of skilled personnel to use new tools and loss of accounting skills (basic accounting skills performed by computers). The greatest weakness voted by respondents was dependence on technology with 61,46% followed by cyber security risks with 55,21%, lack of skilled personnel (52,08%) and loss of accounting skills with 48,96%. Moderate weaknesses are complexity with 53,13%, data security - data breaches - data privacy by 50% and cost and maintenance by 43,75%. The category that was considered by some that is not a weakness is complexity with 23,96% and loss of accounting skills with 15,63%. Results are displayed in Figure 4-21 and Table 0-5 in Appendix B.

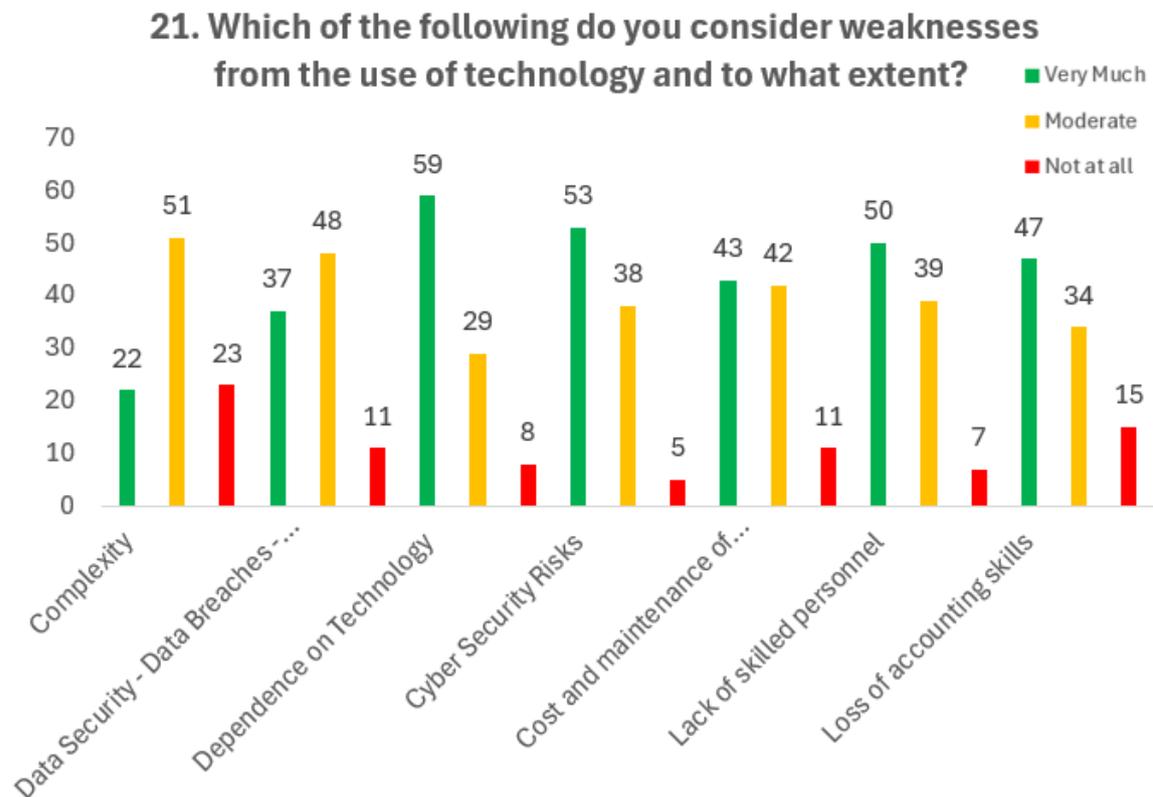


Figure 4-21: Question 21 histogram

## 4.2 Inferential statistics

### 4.2.1 ANOVA Analysis

ANOVA analysis has been used in order to identify if there have been differences in the responses between different groups. For this reason, variables gender, age, educational level and employment status have been used as independent variables and questions 9 to 21 have been used as dependent variables. For multiple choice questions, each option is considered a separate question.

Additionally, the following mapping has been used for scales.

For questions 9 to 16:

Scale	Value
Strongly disagree	0

Disagree	1
Neutral	2
Agree	3
Strongly agree	4

**Table 4-17: Scale for questions 9 to 16**

For questions 17:

Scale	Value
Yes	0
No	1

**Table 4-18: Scale for question 17**

For questions 18 and 19:

Scale	Value
Yes	0
No	1
I do not know/ I do not answer	2

**Table 4-19: Scale for questions 18 and 19**

For questions 20 and 21:

Scale	Value
Not at all	0
Moderate	1
Very much	2

**Table 4-20: Scale for questions 20 and 21**

ANOVA analysis of means has been performed with independent variable of “Gender” and all questions as dependent variables at confidence interval 95%. Results can be found in

Appendix B in Table 0-1. Based on the results, there are no statistically significant differences because of the gender as p-value is greater than 0,05. There was only one question where p-value was less than 0,05, which is question 19 “Do you believe that Chatbots technology (ChatGPT, CoPilot) will improve accounting processes in the future?” with p-value 0,047. In the table below (Table 4-26), means about this question are presented (details in Table 0-2 in Appendix B)

<b>Descriptives</b>			
	<b>Gender</b>	<b>N</b>	<b>Mean</b>
<b>19. Do you believe that Chatbots technology (ChatGPT, CoPilot) will improve accounting processes in the future?</b>	<b>Male</b>	38	0.26
	<b>Female</b>	58	0.59
	<b>Total</b>	96	0.46

**Table 4-21: ANOVA groups for gender**

The results above show that men generally believe that chatbots will improve accounting processes in the future as their mean is 0,26 (value 0 is used for Yes) while most of the women do not believe so as mean is 0,59 (value 1 is used for No).

### **Age**

When variable of “Age” is used, there are several statements for which p-value is less than 0,05 and thus indicate that replies differ between different age groups. The questions are presented in Table 4-27 (ANOVA analysis for all parameters can be found in Appendix B in Table 0-3):

<b>ANOVA</b>	
	<b>Sig.</b>
<b>11. I could be more efficient at my work if I had information technology related education.</b>	0.010

<b>18.a. Do you use Big Data technology in your work for accounting purposes?</b>	0.012
<b>18.e. Do you use Automations technology (RPA, Uipath, Microsoft Power Automate) in your work for accounting purposes?</b>	0.005
<b>21.d. To what extent do you consider "Cyber security risks" is a weakness from the use of technology?</b>	0.010

**Table 4-22: ANOVA for age**

In the table below (Table 4-28), means about this question are presented (details in Table 0-4 in Appendix B):

<b>Descriptives</b>			
		<b>N</b>	<b>Mean</b>
<b>11. I could be more efficient at my work if I had information technology related education.</b>	<b>18-29</b>	8	2.63
	<b>30-39</b>	29	3.21
	<b>40-49</b>	42	2.86
	<b>50-59</b>	15	2.60
	<b>&gt;60</b>	2	1.50
	<b>Total</b>	96	2.88
<b>18.a. Do you use Big Data technology in your work for accounting purposes?</b>	<b>18-29</b>	8	1.13
	<b>30-39</b>	29	1.10
	<b>40-49</b>	42	0.62
	<b>50-59</b>	15	1.27
	<b>&gt;60</b>	2	1.00
	<b>Total</b>	96	0.92
	<b>18-29</b>	8	1.00

<b>18.e. Do you use Automations technology (RPA, Uipath, Microsoft Power Automate) in your work for accounting purposes?</b>	<b>30-39</b>	29	1.00
	<b>40-49</b>	42	0.43
	<b>50-59</b>	15	1.07
	<b>&gt;60</b>	2	1.00
	<b>Total</b>	96	0.76
<b>21.d. To what extent do you consider "Cyber security risks" is a weakness from the use of technology?</b>	<b>18-29</b>	8	1.75
	<b>30-39</b>	29	1.66
	<b>40-49</b>	42	1.52
	<b>50-59</b>	15	1.07
	<b>&gt;60</b>	2	1.00
	<b>Total</b>	96	1.50

**Table 4-23: ANOVA groups for age.**

Question 11 asks respondents if they believe that they could be more efficient at their work if they had information technology related education. The group with highest mean is age group 30-39 with mean 3,21 (values range between 0 – Strongly disagree and 4 – Strongly agree). This means that this age group, which has some working experience, comprehends the contribution of technology to accounting. Rest of the age groups agree that technology related education would assist them with means over 2 which is the value for response “Agree”. It is impressive though, that greater ages, group over 60, do not believe they need technological education. This may be related to the tasks they perform.

Question 18.a. and 18.b is about whether respondents use specific technologies. The technologies for which different uses have been observed between age groups is Big Data and Automations. The scale for this question is between 0 for yes and 2 for “I do not know/ I do not answer”. In both technologies, the group with lower mean, meaning greater use of technology, is age group 40-49 with mean 0,62 for Big Data and 0,43 for automations. Responses with mean greater or equal to 1 is observed in the rest of age groups.

The last question is about the weakness of Cyber Security. This question’s scale is between 0 for “Not at all” and 2 for "Very Much”. It is observed that there is a linear relationship

with age as the younger respondents have higher mean which means that they are concerned about security risks.

### **Educational Level**

When variable of “Educational Level” is used, there are several statements for which p-value is less than 0,05. The questions are presented in Table 4-29 (ANOVA analysis for all parameters can be found in Appendix B in Table 0-5):

<b>ANOVA</b>	
	<b>Sig.</b>
<b>10. I can adapt to technologically changing accounting tools.</b>	0.014
<b>13. Technology has improved the efficiency of accounting tasks.</b>	0.023
<b>16. Evolution of technology threatens accountants' work.</b>	0.033
<b>17.a. Are you aware of Big Data technology?</b>	0.011
<b>17.b. Are you aware of AI technology?</b>	0.003
<b>17.d. Are you aware of Chatbots technology (ChatGPT, CoPilot)?</b>	<0.001
<b>18.b. Do you use AI technology in your work for accounting purposes?</b>	0.026
<b>20.c. To what extent are accounting processes improved with the use of technology regarding category "Compliance with Regulations"?</b>	0.045
<b>20.j. To what extent are accounting processes improved with the use of technology regarding category "Fraud Detection"?</b>	0.012

**Table 4-24: ANOVA for educational level**

In the table (Table 4-31) below, the means about this question are presented (details in Table 0-6 in Appendix B):

<b>Descriptives</b>		
	<b>N</b>	<b>Mean</b>

<b>10. I can adapt to technologically changing accounting tools.</b>	<b>High School</b>	18	2.94
	<b>Bachelor</b>	38	3.18
	<b>Master</b>	39	3.31
	<b>PhD</b>	1	2.00
	<b>Total</b>	96	3.18
<b>13. Technology has improved the efficiency of accounting tasks.</b>	<b>High School</b>	18	2.89
	<b>Bachelor</b>	38	3.11
	<b>Master</b>	39	3.31
	<b>PhD</b>	1	4.00
	<b>Total</b>	96	3.16
<b>16. Evolution of technology threatens accountants' work.</b>	<b>High School</b>	18	2.61
	<b>Bachelor</b>	38	2.21
	<b>Master</b>	39	1.85
	<b>PhD</b>	1	3.00
	<b>Total</b>	96	2.15
<b>17.a. Are you aware of Big Data technology?</b>	<b>High School</b>	18	0.67
	<b>Bachelor</b>	38	0.50
	<b>Master</b>	39	0.26
	<b>PhD</b>	1	1.00
	<b>Total</b>	96	0.44
<b>17.b. Are you aware of AI technology?</b>	<b>High School</b>	18	0.56
	<b>Bachelor</b>	38	0.32
	<b>Master</b>	39	0.13

	<b>PhD</b>	1	1.00
	<b>Total</b>	96	0.29
<b>17.d. Are you aware of Chatbots technology (ChatGPT, CoPilot)?</b>	<b>High School</b>	18	0.56
	<b>Bachelor</b>	38	0.29
	<b>Master</b>	39	0.05
	<b>PhD</b>	1	1.00
	<b>Total</b>	96	0.25
<b>18.b. Do you use AI technology in your work for accounting purposes?</b>	<b>High School</b>	18	1.22
	<b>Bachelor</b>	38	0.89
	<b>Master</b>	39	0.74
	<b>PhD</b>	1	2.00
	<b>Total</b>	96	0.91
<b>20.c. To what extent are accounting processes improved with the use of technology regarding the category "Compliance with Regulations"?</b>	<b>High School</b>	18	1.61
	<b>Bachelor</b>	38	1.13
	<b>Master</b>	39	1.18
	<b>PhD</b>	1	1.00
	<b>Total</b>	96	1.24
<b>20.j. To what extent are accounting processes improved with the use of technology regarding the category "Fraud Detection"?</b>	<b>High School</b>	18	1.72
	<b>Bachelor</b>	38	1.34
	<b>Master</b>	39	1.21
	<b>PhD</b>	1	0.00
	<b>Total</b>	96	1.34

**Table 4-25: ANOVA groups for educational level**

Question 10 asks respondents about their ability to adapt to technologically changing accounting tools. The mean increases as the educational level increases meaning that the

higher education a respondent has, it is easier for him to follow technology. There is an exception though to the level of PhD where there was only one respondent who despite her high-level education, she believes that she cannot adapt to technology. This is considered an outlier.

Question 13 is about how much technology has improved the efficiency of accounting tasks. The mean is getting higher as the educational level increases starting from 2.89 for High school graduates to 4.00 for PhD graduate. The following question is 16 which investigates whether accountants' work is threatened by technology. Generally, respondents agree with this statement as the mean is higher than 2 which means "Neutral". The only category with mean less than 2 is Master graduates with mean 1.85 depicting that they disagree. The PhD graduate is again an outlier.

Next question is question 17 which examines respondents' awareness of several technologies. Differences between groups are observed in technologies of Big Data, AI and Chatbots. The pattern is the same for all of the three technologies. The mean is getting smaller and smaller as education level is greater which means that respondents with higher educational level have greater level of technology awareness (0 is used for Yes and 1 for No). The respondent with PhD education is again an outlier. The same pattern is observed also in question 18 about use of AI.

Last question with differences between groups based on educational level is question 20 about improvements from technology. It looks that respondents with lower educational level believe that technology has greater impact on areas of "Compliance with Regulations" and "Fraud Detection" than respondents with higher education do.

### **Employment status**

When variable of "Employment Status" is used, there are several statements for which p-value is less than 0,05. The questions are presented in the following table (ANOVA analysis for all parameters can be found in Appendix B in Table 0-7):

ANOVA	
	Sig.

<b>18.e. Do you use Automations technology (RPA, UiPath, Microsoft Power Automate) in your work for accounting purposes?</b>	0.037
<b>19.e. Do you believe that Automations technology (RPA, Uipath, Microsoft Power Automate) will improve accounting processes in the future?</b>	0.022
<b>21.e. To what extent do you consider "Cost and maintenance of technology" to be a weakness from the use of technology?</b>	0.015

**Table 4-26: ANOVA for employment status**

In the table below (Table 4-33), means about this question are presented (details in Table 0-8 in Appendix B):

<b>Descriptives</b>			
		<b>N</b>	<b>Mean</b>
<b>18.e. Do you use Automations technology (RPA, Uipath, Microsoft Power Automate) in your work for accounting purposes?</b>	<b>Accounting Employee</b>	62	0.69
	<b>Accounting Executive/ Supervisor/ Director</b>	29	0.76
	<b>Other</b>	5	1.60
	<b>Total</b>	96	0.76
<b>19.e. Do you believe that Automations technology (RPA, Uipath, Microsoft Power Automate) will improve accounting processes in the future?</b>	<b>Accounting Employee</b>	62	0.47
	<b>Accounting Executive/ Supervisor/ Director</b>	29	0.59
	<b>Other</b>	5	1.60
	<b>Total</b>	96	0.56
	<b>Accounting Employee</b>	62	1.47

<b>21.e. To what extent do you consider "Cost and maintenance of technology" is a weakness from the use of technology?</b>	<b>Accounting Executive/ Supervisor/ Director</b>	29	1.03
	<b>Other</b>	5	1.40
	<b>Total</b>	96	1.33

**Table 4-27: ANOVA groups for employment status**

Differences have been observed based on employment status. Based on the results, employees with higher responsibilities such as accounting executives, supervisors and directors use automations and believe in the improvement because of automation more than accounting employees believe. Finally, accounting employees consider that “Cost and Maintenance of technology” is an important weakness of technology while accounting executives/ supervisors/directors believe it is a “Moderate” weakness.

#### **4.2.2 Pearson Correlation**

Pearson correlation is another statistical test that can be used to find correlations between data. After analyzing different combinations of parameters, several combinations have been found with a significant level less than 0,05 or even 0,01. The first correlation observed is between question “Technology has improved the efficiency of accounting tasks.” and “Technology will improve the efficiency of accounting tasks in the next 5 years.”. Results are displayed below (Table 4-34):

<b>Correlations</b>		
	<b>Technology has improved the efficiency of accounting tasks.</b>	<b>Technology will improve the efficiency of accounting tasks in the next 5 years.</b>
	<b>Pearson Correlation</b>	1
		0.571**

<b>Technology has improved the efficiency of accounting tasks.</b>	<b>Sig. (2-tailed)</b>		<.001
	<b>N</b>	96	96
<b>Technology will improve the efficiency of accounting tasks in the next 5 years.</b>	<b>Pearson Correlation</b>	0.571**	1
	<b>Sig. (2-tailed)</b>	<.001	
	<b>N</b>	96	96
**. Correlation is significant at the 0.01 level (2-tailed).			

**Table 4-28: Pearson Correlation Comparison 1**

Additionally, correlation has been identified between “Traditional accounting role will become obsolete due to technology.” and “Evolution of technology threatens accountants' work.”. The correlation is strong as it is close to 1 (0,687). Results are as follows (Table 4-35):

<b>Correlations</b>			
		<b>Traditional accounting role will become obsolete due to technology.</b>	<b>Evolution of technology threatens accountants' work.</b>
<b>Traditional accounting role will become obsolete due to technology.</b>	<b>Pearson Correlation</b>	1	0.687**
	<b>Sig. (2-tailed)</b>		<0.001
	<b>N</b>	96	96
<b>Evolution of technology threatens accountants' work.</b>	<b>Pearson Correlation</b>	0.687**	1
	<b>Sig. (2-tailed)</b>	<.001	
	<b>N</b>	96	96
**. Correlation is significant at the 0.01 level (2-tailed).			

**Table 4-29: Pearson Correlation Comparison 2**

Finally, the correlation of Big Data and AI technologies have been investigated. Statement “I am properly trained to use accounting tools of my company (e.g. ERP).” is correlated with several statements about Big Data and AI, however the correlation is weak as it is close to zero (0). Results can be found below (Table 4-36):

<b>Correlations</b>		
		<b>I am properly trained to use accounting tools of my company (e.g. ERP).</b>
<b>I am properly trained to use accounting tools of my company (e.g. ERP).</b>	<b>Pearson Correlation</b>	1
	<b>Sig. (2-tailed)</b>	
	<b>N</b>	96
<b>Do you believe that Big Data technology will improve accounting processes in the future?</b>	<b>Pearson Correlation</b>	-0.220 <sup>*</sup>
	<b>Sig. (2-tailed)</b>	<b>0.031</b>
	<b>N</b>	96
<b>Do you believe that AI technology will improve accounting processes in the future?</b>	<b>Pearson Correlation</b>	-0.225 <sup>*</sup>
	<b>Sig. (2-tailed)</b>	<b>0.028</b>
	<b>N</b>	96
<b>Do you believe that Automations technology (RPA, Uipath, Microsoft Power Automate) will improve accounting processes in the future?</b>	<b>Pearson Correlation</b>	-0.333 <sup>**</sup>
	<b>Sig. (2-tailed)</b>	<b>&lt;0.001</b>
	<b>N</b>	96
<b>Do you believe that Machine Learning technology will</b>	<b>Pearson Correlation</b>	-0.294 <sup>**</sup>
	<b>Sig. (2-tailed)</b>	0.004

<b>improve accounting processes in the future?</b>	<b>N</b>	96
<b>Do you use Chatbots technology (ChatGPT, CoPilot) in your work for accounting purposes?</b>	<b>Pearson Correlation</b>	-0.286**
	<b>Sig. (2-tailed)</b>	<b>0.005</b>
	<b>N</b>	96
<b>Do you use Automations technology (RPA, Uipath, Microsoft Power Automate) in your work for accounting purposes?</b>	<b>Pearson Correlation</b>	-0.278**
	<b>Sig. (2-tailed)</b>	<b>0.006</b>
	<b>N</b>	96
*. Correlation is significant at the 0.05 level (2-tailed).		
**. Correlation is significant at the 0.01 level (2-tailed).		

**Table 4-30: Pearson Correlation Comparison 3**

#### 4.2.3 Regression Analysis

In this chapter, regression analysis is performed to investigate the impact of explanatory variables on the dependent variable. The following hypotheses are stated with several combinations of variables:

H<sub>0</sub>: There is no linear relationship between dependent and independent variable

H<sub>1</sub>: There is linear relationship between the dependent variable and at least one of the independent variables

##### 1<sup>st</sup> question

The first question explores whether accountants believe that accountants' profession is threatened by evolution of technology. The dependent variable is question "Evolution of technology threatens accountants' work." mentioned as "Threat" now on. The first set of variables to be investigated is demographic data.

- Dependent variable: Threat
- Independent variables: Demographic data (Employment Status, Age, Gender, Educational Level)

The results are displayed below:

Model Summary						
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
1	0.359	0.129	0.091	0.938		
ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	11.879	4	2.970	3.375	0.013
	Residual	80.079	91	0.880		
	Total	91.958	95			

Table 4-31: Regression "Threat" 1<sup>st</sup> trial

The value of R square (0,129) depicts that the model explains 12,9% of the variance in the dependent variable. The p-value is 0,013, less than 0,05 and  $F_{STAT}$  is 3,375, greater than 2,5 which is the critical value of the F distribution with 4 and 91 degrees of freedom. Thus, the Null hypothesis is rejected. As though, there is a linear relationship between the dependent variable and at least one of the independent variables. In the following table the regression coefficients of independent variables are displayed (all data in Appendix B, Table 0-14):.

Coefficients				
Model		Unstandardized Coefficients		Sig.
		B	Std. Error	
1	(Constant)	2.902	0.332	<0.001
	Gender	-0.322	0.209	0.128
	Age	0.007	0.114	0.952
	Educational Level	-0.372	0.138	<b>0.008</b>

	<b>Employment Status</b>	-0.0306	0.175	0.083
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**Table 4-32: Regression “Threat” 1<sup>st</sup> trial coefficients**

Based on the results above, there is a statistically significant relationship between educational level and dependent variable of “Threat” as the p-value is 0,008, less than 0,05.

The second group of independent variables to be examined questions 9 to 15 which investigate the adoption of technology by accountants. The results are displayed below:

- Dependent variable: Threat
- Independent variables: Questions 9 to 15.

Model Summary						
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
1	0.721	0.521	0.482	0.708		

ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	47.868	7	6.838	13.648	<0.001
	Residual	44.091	88	0.501		
	Total	91.958	95			

**Table 4-33: Regression “Threat” 2<sup>nd</sup> trial**

The value of R square (0,521) depicts that the model explains 52,1% of the variance in the dependent variable.  $F_{STAT}$  value is 13,648 which is greater than 2,5 of the F distribution and the p-value is <0,001 which is less than 0,05 meaning that overall, the model is significant and thus the Null hypothesis is rejected. As though, there is a linear relationship between the dependent variable and at least one of the independent variables.

In the following table the regression coefficients of independent variables are displayed (details in Appendix B, Table 0-15):

<b>Coefficients</b>			
<b>Model</b>		<b>Unstandardized</b>	<b>Sig.</b>
		<b>ed Coefficients</b>	
		<b>B</b>	
<b>1</b>	<b>(Constant)</b>	0.856	0.185
	<b>I am properly trained to use accounting tools of my company (e.g. ERP).</b>	-0.107	0.320
	<b>I can adapt to technologically changing accounting tools.</b>	-0.120	0.450
	<b>I could be more efficient on my work if I had information technology related education.</b>	-0.019	0.846
	<b>Technology has increased the complexity of accounting tools.</b>	0.167	<b>0.035</b>
	<b>Technology has improved the efficiency of accounting tasks.</b>	-0.038	0.812
	<b>Technology will improve the efficiency of accounting tasks in the next 5 years.</b>	0.039	0.781
	<b>Traditional accounting role will become obsolete due to technology.</b>	0.749	<b>&lt;0.001</b>

**Table 4-34: Regression “Threat” 2<sup>nd</sup> trial coefficients**

Based on the results above, there is a statistically significant relationship between variables “Technology has increased the complexity of accounting tools.” and “Traditional accounting role will become obsolete due to technology.” and dependent variable of “Evolution of technology threatens accountants' work.” as the p-values are 0,035 and <0,001 respectively which is less than 0,05.

Finally, the dependent variable has been investigated against independent variables related to weaknesses of technology (question 21). The results of regression analysis are displayed below:

- Dependent variable: Threat
- Independent variables: Questions 21

Model Summary						
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
1	0.293	0.086	0.013	0.977		
ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	7.917	7	1.131	1.184	0.320
	Residual	84.041	88	0.955		
	Total	91.958	95			

Table 4-35: Regression "Threat" 3<sup>rd</sup> trial

The value of R square (0,086) depicts that the model explains 8,6% of the variance in the dependent variable. The p-value is 0,320 greater than 0,05 meaning that Null hypothesis fails to reject. As though, there is no evidence that there is linear relationship between the dependent variable and at least one of the independent variables.

## 2<sup>nd</sup> question

The second question aimed to investigate which benefits and weaknesses accountants observe because of technology. All benefits and weaknesses in questions 20 and 21 have been used as dependent variables and demographic data have been used as independent variables. The only dependent variable with significant relationship was the threat of Cyber Security. The results of regression analysis are displayed below:

- Dependent variable: Cyber Security risks
- Independent variables: Demographic data

Model Summary						
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
1	0.351	0.123	0.085	0.572		
ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4.194	4	1.049	3.201	0.017
	Residual	29.806	91	0.328		
	Total	34.000	95			

**Table 4-36: Regression “Cyber Security” 1<sup>st</sup> trial**

The value of R square (0,123) depicts that the model explains 12,3% of the variance in the dependent variable. The p-value is 0,017 which is less than 0,05 and  $F_{STAT}$  is 3,201 which is greater than 2,5 which is the critical value of the F distribution. Thus, the Null hypothesis is rejected. As though, there is a linear relationship between the dependent variable and at least one of the independent variables.

In the following table the regression coefficients of independent variables are displayed (details in Appendix B, Table 0-16):

Coefficients			
Model		Unstandardi zed Coefficients	Sig.
		B	
1	(Constant)	1.716	<0.001
	Gender	0.075	0.559
	Age	-0.206	<b>0.004</b>
	Educational Level	0.086	0.311

	<b>Employment Status</b>	-0.021	0.841
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**Table 4-37: Regression "Cyber Security" 1<sup>st</sup> trial coefficients**

Based on the results above, there is a statistically significant relationship between age and dependent variable for risk of Cyber security as the p-value is 0,004 which is less than 0,05.

Following this analysis, benefits and threats of technology have been used as dependent variables and questions 9 to 16 have been used as independent variables. The cases where relationships have been identified regarding the benefits are the following:

<b>Model Summary</b>				
<b>Model</b>	<b>R</b>	<b>R Square</b>	<b>Adjusted R Square</b>	<b>Std. Error of the Estimate</b>
<b>Dependent Variable: Improvement in category "Efficiency - Speed - Automation"?</b>				
<b>1</b>	0.451 <sup>a</sup>	0.203	0.130	0.474
<b>Dependent Variable: Improvement in category "Less manual actions, errors - repetitive tasks"?</b>				
<b>1</b>	0.493 <sup>a</sup>	0.243	0.173	0.544
a. Predictors: (Constant), Questions 9 to 16				

<b>ANOVA</b>						
<b>Model</b>		<b>Sum of Squares</b>	<b>df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>
<b>Dependent Variable: Improvement in category "Efficiency - Speed - Automation"?</b>						
<b>1</b>	<b>Regression</b>	4.971	8	0.621	2.769	0.009
	<b>Residual</b>	19.519	87	0.224		
	<b>Total</b>	24.490	95			
<b>Dependent Variable: Improvement in category "Less manual actions, errors - repetitive tasks"?</b>						

<b>1</b>	<b>Regression</b>	8.249	8	1.031	3.489	.002
	<b>Residual</b>	25.709	87	.296		
	<b>Total</b>	33.958	95			
Predictors: (Constant), Questions 9 to 16.						

**Table 4-38: Regression “Cyber Security” 2<sup>nd</sup> trial**

The benefits analyzed are “Efficiency - Speed – Automation” and "Less manual actions, errors - repetitive tasks" have been used as dependent variables. These variables have been investigated for relationship with variables of questions 9 to 16. These models explain 20,3% and 24,3% respectively and are significant with values 0,09 and 0,02. The coefficients per case where p-values were less than 0,05 are the following (all of the results can be found in Appendix B, Table 0-17, Table 0-18):

- For variable “Efficiency - Speed – Automation” there was linear relationship with variables about expected improvement on efficiency in the next 5 years (p-value 0,032 and coefficient 0,203) and with variable expected accounting profession becoming obsolete (p-value 0,025 and coefficient 0,175)
- For variable “Less manual actions, errors - repetitive tasks” there was linear relationship with variables about expected improvement on efficiency in the next 5 years (p-value 0,006 and coefficient 0,298), with variable expected accounting profession becoming obsolete (p-value 0,026 and coefficient 0,199) and variable about increased complexity (p-value 0,038 and coefficient 0,129).

Respective analysis has taken place for weaknesses and the following were identified:

<b>Model Summary</b>				
<b>Model</b>	<b>R</b>	<b>R Square</b>	<b>Adjusted R Square</b>	<b>Std. Error of the Estimate</b>
<b>Dependent Variable: Weakness of "Complexity"</b>				
<b>1</b>	0.514 <sup>a</sup>	0.264	0.197	0.617
<b>Dependent Variable: Weakness of "Data Security - Data Breaches - Data Privacy"</b>				

<b>1</b>	.485 <sup>a</sup>	.235	.165	.600		
a. Predictors: (Constant), Questions 9 to 16						
ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
Dependent Variable: Weakness of "Complexity"						
<b>1</b>	<b>Regression</b>	11.898	8	1.487	3.910	<0.001
	<b>Residual</b>	33.092	87	0.380		
	<b>Total</b>	44.990	95			
Dependent Variable: Weakness of "Data Security - Data Breaches - Data Privacy"						
<b>1</b>	<b>Regression</b>	9.623	8	1.203	3.340	0.002
	<b>Residual</b>	31.336	87	0.360		
	<b>Total</b>	40.958	95			
Predictors: (Constant), Questions 9 to 16.						

**Table 4-39: Regression "Cyber Security" 3<sup>rd</sup> trial**

The weaknesses analyzed are "Complexity" and "Data Security - Data Breaches - Data Privacy" have been used as dependent variables. These variables have been investigated for relationship with variables of questions 9 to 16. These models explain 26,4% and 23,5% respectively and are significant with values less than 0,01 and 0,02. The coefficients per case where p-values were less than 0,05 are the following (all results in Appendix B, Table 0-19, Table 0-20):

- For variable "Complexity" there was linear relationship with variables about expected accounting profession becoming obsolete (p-value 0,033 and coefficient 0,216), variable about threat on accounting profession (p-value 0,032 and coefficient 0,202) and increased complexity of accounting tools (p-value 0,002 and coefficient 0,221)
- For variable "Data Security - Data Breaches - Data Privacy" there was linear relationship with variables increased complexity of accounting tools (p-value less

than 0,001 and coefficient 0,236) expected improvement on efficiency in the next 5 years (p-value 0,023 and coefficient 0,273)

### 3<sup>rd</sup> Question

The third question aims to investigate whether the expected benefits from the use Big Data and AI are expected by the respondents. For this reason, the dependent variables to be used are based on question 19 of the questionnaire for categories of Big Data, AI and its sub-categories.

The variable of Big Data has been investigated for linear relationship against all technology benefits (question 20).

- Dependent variable: Big Data benefit
- Independent variables: Technology benefits (Question 20)

ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	10.870	11	0.988	1.252	0.267
	Residual	66.287	84	0.789		
	Total	77.156	95			

Table 4-40: Regression "Big Data" 1st trial

No liner relationship occurs as p-value is 0,267 which is greater than 0,05. The null hypothesis fails to reject.

Another two dependent variables are added to the model which are awareness of Big Data and use of Big Data.

- Dependent variable: Big Data benefit
- Independent variables: Technology benefits (question 20), awareness of Big Data (question 17), use of Big Data (question 18).

The results are as follows:

### Model Summary

<b>Model</b>	<b>R</b>	<b>R Square</b>	<b>Adjusted R Square</b>	<b>Std. Error of the Estimate</b>		
<b>1</b>	0.552	0.305	0.194	0.809		
<b>ANOVA</b>						
<b>Model</b>		<b>Sum of Squares</b>	<b>df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>
<b>1</b>	<b>Regression</b>	23.508	13	1.808	2.764	0.003
	<b>Residual</b>	53.648	82	0.654		
	<b>Total</b>	77.156	95			

**Table 4-41: Regression “Big Data” 2<sup>nd</sup> trial**

The value of R square (0,305) depicts that the model explains 30,5% of the variance in the dependent variable. The p-value is 0,003 which is less than 0,05. Thus, the Null hypothesis is rejected. As though, there is a linear relationship between the dependent variable and at least one of the independent variables.

The coefficients per case where p-values were less than 0,05 are the following (all results in Appendix B, Table 0-21):

- Variable “To what extent are accounting processes improved with the use of technology regarding category "Improved Decision Making"?” (p-value 0,032 and coefficient 0,327)
- Variable “Are you aware of Big Data technology?” (p-value 0,003 and coefficient 0,702)

Decision Making is one of the main benefits of Big Data based on the literature review. The results of this questionnaire have confirmed the theory.

Variable of “AI” has been investigated for linear relationship against all technology benefits (question 20). The p-value was greater than 0,05 and thus the Null hypothesis failed to reject indicating no linear relationship. Another two independent variables have been added to the model, which were awareness of AI and use of AI. The p-value was again greater than 0,05 and thus the Null hypothesis failed to reject.

Variable of “Chatbots” has been investigated for linear relationship against all technology benefits (question 20). The p-value was greater than 0,05 and thus the Null hypothesis failed to reject indicating no linear relationship. Another two independent variables have been added to the model, which were awareness and use of Chatbots.

- Dependent variable: Chatbots benefit
- Independent variables: Technology benefits (question 20), awareness of Chatbots (question 17), use of Chatbots (question 18).

Model Summary						
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
1	0.518	0.268	0.152	0.719		
ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	15.492	13	1.192	2.308	0.012
	Residual	42.341	82	0.516		
	Total	57.833	95			

**Table 4-42: Regression “Chatbots” 1st trial**

The value of R square (0,268) depicts that the model explains 26,8% of the variance in the dependent variable. The p-value is 0,012 which is less than 0,05. Thus, the Null hypothesis is rejected. As though, there is a linear relationship between the dependent variable and at least one of the independent variables.

The coefficients per case where p-values were less than 0,05 are the following (all results in Appendix B, Table 0-22):

- Variable “To what extent are accounting processes improved with the use of technology regarding category "Customer Service” (p-value 0,035 and coefficient 0,322)
- Variable “Do you use Chatbots technology (ChatGPT, CoPilot) in your work for accounting purposes?” (p-value 0,044 and coefficient 0,283)

“Customer Service” is one of the main benefits of AI based on the literature review. The results of this questionnaire have confirmed the theory.

Variable of “Automations” has been investigated for linear relationship against all technology benefits (question 20). The p-value was greater than 0,05 and thus the Null hypothesis failed to reject indicating no linear relationship. Another two independent variables have been added to the model, which were awareness of Automations and use of Automations.

- Dependent variable: Automations benefit
- Independent variables: Technology benefits (question 20), awareness of Automations (question 17), use of Automations (question 18).

The results can be found below:

Model Summary						
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
1	0.677	0.458	0.372	.707		
ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	34.657	13	2.666	5.336	<0.001
	Residual	40.968	82	0.500		
	Total	75.625	95			

**Table 4-43: Regression “Automations” 1st trial**

The value of R square (0,458) depicts that the model explains 45,8% of the variance in the dependent variable. The p-value is less than 0,001 which is less than 0,05. Thus, the Null hypothesis is rejected. As though, there is a linear relationship between the dependent variable and at least one of the independent variables.

The coefficients per case where p-values were less than 0,05 are the following (all of the results can be found in Appendix B, Table 0-23):

- Variable “Are you aware of Automation?” (p-value <0,001 and coefficient 1,051)

The result indicates that respondents that already use Automations see potential benefit in the future from this technology.

Variable of “Machine learning” has been investigated for linear relationship against all technology benefits (question 20). The p-value was greater than 0,05 and thus the Null hypothesis failed to reject indicating no linear relationship. Another two independent variables have been added to the model, which were awareness of “Machine learning” and use of “Machine learning”.

- Dependent variable: Machine learning benefit
- Independent variables: Technology benefits (question 20), awareness of Machine learning (question 17), use of Machine learning (question 18).

The results can be found below:

Model Summary						
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
1	0.531	0.282	0.168	0.814		
ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	21.301	13	1.639	2.472	0.007
	Residual	54.355	82	0.663		
	Total	75.656	95			

**Table 4-44: Regression “Machine Learning” 1st trial**

The value of R square (0,282) depicts that the model explains 28,2% of the variance in the dependent variable. The p-value is 0,007 which is less than 0,05. Thus, the Null hypothesis is rejected. As though, there is a linear relationship between the dependent variable and at least one of the independent variables.

The coefficients per case where p-values were less than 0,05 are the following (all results in Appendix B, Table 0-24):

- Variable “Are you aware of Machine Learning technology?” (p-value 0,044 and coefficient 0,397)
- Variable “Do you use Machine Learning technology in your work for accounting purposes?” (p-value 0,018 and coefficient 0,358)

The result indicates that respondents that already use Machine Learning and/or are aware of this technology, see potential benefit in the future from this technology.

## **5 Conclusions, limitations and suggestions for future research**

### **5.1 Conclusions**

This dissertation's scope was to examine and present the impact of technology in the field of accounting. In more detail, to describe how technology has affected accounting starting from the introduction of machines and computers to the most recent technologies of Big Data and Artificial Intelligence (AI). Additionally, the areas in which technology has brought improvement are investigated along with the disadvantages and threats because of its use.

The benefits from the appliance of technology based on literature review are use of equipment and reduction of paper usage, better customer service, speed, efficiency and accuracy, improved reporting, fraud detection, better decision making, competitive advantage, reduced costs, flexibility and security. The categories that brought greater improvement, based on respondents' feedback in the questionnaire, are improved reporting, efficiency and accuracy (including fewer manual errors and data accuracy) and real time information.

On the other side, the threats or weaknesses from appliance of technology are cyber and data security risks, cost and maintenance, dependence on technology, bias, elimination of jobs and job displacement, lack of technological skills and increased complexity. The categories that respondents believe are greater weaknesses are dependence on technology, cyber security risks and lack of technological skills.

This dissertation also analyzed the most recent technologies and the expected impact on accounting. Big Data can bring further improvement in accurate and on-time reporting, on risk management, development of new accounting products and audit efficiency. Additionally, artificial intelligence, including machine learning, chatbots and automations, has benefits such as reduced errors, managed risks, gain of competitive advantage, enhanced efficiency, improved customer support, fraud detection, journal validations, prediction of errors, identification of misstatements and irregularities and increased productivity.

The questionnaire conducted investigated the knowledge of accountants on these technologies. Based on the results, respondents were not aware of Machine Learning technology while there was moderate knowledge on Big Data and automations. On top of

that, more than half of the participants replied that they do not use Big Data nor AI technology (including ML and Chatbots). However, the majority of respondents agree that these technologies will bring further improvement in accounting in the future.

Regarding the attitude of respondents towards technology, the questionnaire research displayed that accountants recognize the positive impact of technology on accounting and believe that further improvement is possible in the future. Additionally, they believe that they can adapt to technological changes and are properly trained to use accounting tools, but they also believe that they would be more efficient if they have received technological education. Finally, a big part of the respondents understand that the traditional role of accountant is becoming obsolete while a notable number of respondents (44%) feel that accountant's profession is threatened by technology.

Regression analysis on questionnaire results revealed that there is relationship between educational level and the perceived threat on accounting profession. A linear relationship has been observed also between benefits of "Efficiency - Speed - Automation", "Less manual actions, errors - repetitive tasks" and expected improvement in the next 5 years. Moreover, the results revealed that the cyber security threat is considered more important from employees of younger age. A very interesting finding which emerged from the literature review of this dissertation is the linear relationships between "Big Data" benefit and decision-making, Chatbots and customer service. Decision-making is one of the most important benefits from the use of "Big Data", while Chatbots are broadly used to improve customer service. Thus, the theory is confirmed in these two cases.

Technology has brought several changes in accounting and its advancements have changed the type of tasks they have to perform. Some accountants may feel threatened by these changes, but the majority adapt to the new environment base in this survey. The literature review revealed that new technologies can perform several tasks on behalf of accountants and accountants should focus on complex tasks such as extensive analysis of financial statements. Their role should change and become business advisors and acquire a consultive role. As though technology is not aimed at replacing humans but complement them.

## **5.2 Limitations and Suggestions for future research**

In the scope of this dissertation a questionnaire was conducted and distributed among accounting employees. The biggest part of the respondents works for big companies in Greek market as 66% work for companies with over 200 employees and 4% work for companies with number of employees between 100 and 200. Bigger companies normally spend more money on technology and on the training of the personnel. Thus, their employees, and consequently the respondents of this questionnaire, may be more trained and closer to technology than the average accounting employee. For this reason, further research is suggested to perform with a sample of accountants that work in companies of smaller size.

Additionally, the research revealed that decision making, which is an area that will benefit greatly by the advancements of Big Data and AI, was not voted by many respondents as an accounting area that will be improved by technology compared to the other options provided to respondents. It is possible that the respondents are not involved in decision making tasks and this may excuse their responses. For this reason, it is suggested to conduct a respective survey to a targeted group which is involved in decision making tasks.

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[Accounting Meaning - The Economic Times](#)

[How has Technology Impacted the Finance and Accounting Industry](#)

[Investopedia](#)

## **Appendix A: Questionnaire**

### **Impact of technology on accounting departments, analysis of benefits and weaknesses of its appliance**

This questionnaire is part of the research for my thesis titled " Impact of technology on accounting departments, analysis of benefits and weaknesses of its appliance", within the "Master in Business Administration (MBA)" program of the Hellenic Open University (HOU).

The questionnaire is aimed to investigate the impact of technology on accounting processes. Your participation is anonymous, and it will take approximately **10 minutes** to complete. The collected responses will be used exclusively for research purposes, contributing to a better understanding of the perception that accounting employees have for the benefits and weaknesses of technology.

Thank you very much for your time and participation!

Sincerely,

Theodora Antoniadou

MBA Student

Hellenic Open University

**Demographic Data**

1. Gender
Male
Female

2. Age
18-29
30-39
40-49
50-59
>60

3. Educational Level
High School
Bachelor
Bachelor
PhD

4. Years of experience in accounting
1-10
1-20
21-30
>30

5. Number of employees in your company
10
11-50
51-100
101-200
>200

6. Employment Status
Accounting Employee
Accounting Executive/ Supervisor/ Director
Self - Employed accountant
Other: _____

7. My work activities/ tasks are related to:
Journal Entries
Accounts Payables/ Receivables
Tax Accounting
Budgeting and Forecasting
Financial Reporting & Financial Analysis
Other: _____

### Adoption of Technology in accounting processes

8. Which of the following technologies/ tools do you or your organization currently use for accounting purposes? (Select all that apply)	
<input type="checkbox"/>	Cloud accounting software
<input type="checkbox"/>	ERP systems (e.g., SAP, Oracle)
<input type="checkbox"/>	Automation tools (e.g., RPA, Uipath, Microsoft Power Automate)
<input type="checkbox"/>	Artificial Intelligence /Machine Learning tools
<input type="checkbox"/>	E-invoicing software
<input type="checkbox"/>	Other: _____

9. I am properly trained to use accounting tools of my company (e.g. ERP).	
<input type="checkbox"/>	Strongly disagree
<input type="checkbox"/>	Disagree
<input type="checkbox"/>	Neutral
<input type="checkbox"/>	Agree
<input type="checkbox"/>	Strongly agree

10. I can adapt to technologically changing accounting tools.	
<input type="checkbox"/>	Strongly disagree
<input type="checkbox"/>	Disagree
<input type="checkbox"/>	Neutral
<input type="checkbox"/>	Agree

	Strongly agree
--	----------------

**11. I could be more efficient at my work if I had information technology related education.**

	Strongly disagree
	Disagree
	Neutral
	Agree
	Strongly agree

**12. Technology has increased the complexity of accounting tools.**

	Strongly disagree
	Disagree
	Neutral
	Agree
	Strongly agree

**13. Technology has improved the efficiency of accounting tasks.**

	Strongly disagree
	Disagree
	Neutral

	Agree
	Strongly agree

**14. Technology will improve the efficiency of accounting tasks in the next 5 years.**

	Strongly disagree
	Disagree
	Neutral
	Agree
	Strongly agree

**15. Traditional accounting role will become obsolete due to technology.**

	Strongly disagree
	Disagree
	Neutral
	Agree
	Strongly agree

**16. Evolution of technology threatens accountants' work.**

	Strongly disagree
	Disagree

	Neutral
	Agree
	Strongly agree

### **New Technologies, Benefits, Weaknesses**

<b>17. Are you aware of the following technologies?</b>		
	<b>Yes</b>	<b>No</b>
a. Big Data		
b. Artificial Intelligence		
c. Cloud		
d. Chatbots (ChatGPT, CoPilot)		
e. Automations (RPA, Uipath, Microsoft Power Automate)		
e. Machine Learning		

<b>18. Do you use any of the following technologies in your work for accounting purposes?</b>			
	<b>Yes</b>	<b>No</b>	<b>I do not know/ I do not answer</b>
a. Big Data			
b. Artificial Intelligence			
c. Cloud			
d. Chatbots (ChatGPT, CoPilot)			
e. Automations (RPA, Uipath, Microsoft Power Automate)			

f. Machine Learning			
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19. Do you believe that the following technologies will improve accounting processes in the future?			
	Yes	No	I do not know/ I do not answer
a. Big Data			
b. Artificial Intelligence			
c. Cloud			
d. Chatbots (ChatGPT, CoPilot)			
e. Automations (RPA, Uipath, Microsoft Power Automate)			
f. Machine Learning			

20. To what extent are accounting processes improved with the use of technology in the following categories?			
	Not at all	Moderate	Very Much
a. Efficiency - Speed - Automation			
b. Less manual actions, errors - repetitive tasks			
c. Compliance with Regulations			
d. Competitiveness			
e. Real time data and insights			
f. Data Accuracy			

g. Cost Reduction			
h. Improved Decision Making			
i. Reporting			
j. Fraud Detection			
k. Customer Service			

21. Which of the following do you consider weaknesses from the use of technology and to what extent?			
	Not at all	Moderate	Very Much
a. Complexity			
b. Data Security - Data Breaches - Data Privacy			
c. Dependence on Technology			
d. Cyber Security Risks			
e. Cost and maintenance of Technology			
f. Lack of skilled personnel to use new tools			
g. Loss of accounting skills (basic accounting skills performed by computers)			

## Appendix B: Questionnaire results analysis

### Descriptive statistics

<b>17. Are you aware of the following technologies?</b>			
<b>Big Data</b>			
		Frequency	Percent
<b>Valid</b>	<b>Yes</b>	54	56.25
	<b>No</b>	42	43.75
	<b>Total</b>	96	100.00
<b>Artificial Intelligence (AI)</b>			
		Frequency	Percent
<b>Valid</b>	<b>Yes</b>	68	70.83
	<b>No</b>	28	29.17
	<b>Total</b>	96	100.00
<b>Cloud</b>			
		Frequency	Percent
<b>Valid</b>	<b>Yes</b>	86	89.58
	<b>No</b>	10	10.42
	<b>Total</b>	96	100.00
<b>Chatbots</b>			
		Frequency	Percent
<b>Valid</b>	<b>Yes</b>	72	75.00
	<b>No</b>	24	25.00
	<b>Total</b>	96	100.00
<b>Automations</b>			

		Frequency	Percent
<b>Valid</b>	<b>Yes</b>	56	58.33
	<b>No</b>	40	41.67
	<b>Total</b>	96	100.00
<b>Machine Learning (ML)</b>			
		Frequency	Percent
<b>Valid</b>	<b>Yes</b>	41	42.71
	<b>No</b>	55	57.29
	<b>Total</b>	96	100.00

**Table 0-1: Question 17 statistics**

<b>18. Do you use any of the following technologies in your work for accounting purposes?</b>			
<b>Big Data</b>			
		Frequency	Percent
<b>Valid</b>	<b>Yes</b>	31	32.29
	<b>No</b>	42	43.75
	<b>I do not know/ I do not answer</b>	23	23.96
	<b>Total</b>	96	100.00
<b>Artificial Intelligence (AI)</b>			
		Frequency	Percent
<b>Valid</b>	<b>Yes</b>	26	27.08
	<b>No</b>	53	55.21
	<b>I do not know/ I do not answer</b>	17	17.71

	<b>Total</b>	96	100.00
<b>Cloud</b>			
		<b>Frequency</b>	<b>Percent</b>
<b>Valid</b>	<b>Yes</b>	71	73.96
	<b>No</b>	19	19.79
	<b>I do not know/ I do not answer</b>	6	6.25
	<b>Total</b>	96	100.00
<b>Chatbots</b>			
		<b>Frequency</b>	<b>Percent</b>
<b>Valid</b>	<b>Yes</b>	43	44.79
	<b>No</b>	45	46.88
	<b>I do not know/ I do not answer</b>	8	8.33
	<b>Total</b>	96	100.00
<b>Automations</b>			
		<b>Frequency</b>	<b>Percent</b>
<b>Valid</b>	<b>Yes</b>	42	43.75
	<b>No</b>	35	36.46
	<b>I do not know/ I do not answer</b>	19	19.79
	<b>Total</b>	96	100.00
<b>Machine Learning (ML)</b>			
		<b>Frequency</b>	<b>Percent</b>
<b>Valid</b>	<b>Yes</b>	18	18.75

	<b>No</b>	57	59.38
	<b>I do not know/ I do not answer</b>	21	21.88
	<b>Total</b>	96	100.00

**Table 0-2: Question 18 statistics**

<b>19. Do you believe that the following technologies will improve accounting processes in the future?</b>			
<b>Big Data</b>			
		<b>Frequency</b>	<b>Percent</b>
<b>Valid</b>	<b>Yes</b>	66	68.75
	<b>No</b>	3	3.13
	<b>I do not know/ I do not answer</b>	27	28.13
	<b>Total</b>	96	100.00
<b>Artificial Intelligence (AI)</b>			
		<b>Frequency</b>	<b>Percent</b>
<b>Valid</b>	<b>Yes</b>	70	72.92
	<b>No</b>	7	7.29
	<b>I do not know/ I do not answer</b>	19	19.79
	<b>Total</b>	96	100.00
<b>Cloud</b>			
		<b>Frequency</b>	<b>Percent</b>
<b>Valid</b>	<b>Yes</b>	78	81.25
	<b>No</b>	4	4.17

	<b>I do not know/ I do not answer</b>	14	14.58
	<b>Total</b>	96	100.00
<b>Chatbots</b>			
		<b>Frequency</b>	<b>Percent</b>
<b>Valid</b>	<b>Yes</b>	69	71.88
	<b>No</b>	10	10.42
	<b>I do not know/ I do not answer</b>	17	17.71
	<b>Total</b>	96	100.00
<b>Automations</b>			
		<b>Frequency</b>	<b>Percent</b>
<b>Valid</b>	<b>Yes</b>	68	70.83
	<b>No</b>	2	2.08
	<b>I do not know/ I do not answer</b>	26	27.08
	<b>Total</b>	96	100.00
<b>Machine Learning (ML)</b>			
		<b>Frequency</b>	<b>Percent</b>
<b>Valid</b>	<b>Yes</b>	60	62.50
	<b>No</b>	9	9.38
	<b>I do not know/ I do not answer</b>	27	28.13
	<b>Total</b>	96	100.00

**Table 0-3: Question 19 statistics**

<b>20. To what extent are accounting processes improved with the use of technology in the following categories?</b>			
<b>Efficiency</b>			
		<b>Frequency</b>	<b>Percent</b>
<b>Valid</b>	<b>Very Much</b>	74	77.08
	<b>Moderate</b>	19	19.79
	<b>Not at all</b>	3	3.13
	<b>Total</b>	96	100.00
<b>Less Manual Errors</b>			
		<b>Frequency</b>	<b>Percent</b>
<b>Valid</b>	<b>Very Much</b>	68	70.83
	<b>Moderate</b>	22	22.92
	<b>Not at all</b>	6	6.25
	<b>Total</b>	96	100.00
<b>Compliance</b>			
		<b>Frequency</b>	<b>Percent</b>
<b>Valid</b>	<b>Very Much</b>	33	34.38
	<b>Moderate</b>	53	55.21
	<b>Not at all</b>	10	10.42
	<b>Total</b>	96	100.00
<b>Competitiveness</b>			
		<b>Frequency</b>	<b>Percent</b>
<b>Valid</b>	<b>Very Much</b>	29	30.21
	<b>Moderate</b>	55	57.29

	<b>Not at all</b>	12	12.50
	<b>Total</b>	96	100.00
<b>Real time</b>			
		<b>Frequency</b>	<b>Percent</b>
<b>Valid</b>	<b>Very Much</b>	70	72.92
	<b>Moderate</b>	23	23.96
	<b>Not at all</b>	3	3.13
	<b>Total</b>	96	100.00
<b>Data Accuracy</b>			
		<b>Frequency</b>	<b>Percent</b>
<b>Valid</b>	<b>Very Much</b>	67	69.79
	<b>Moderate</b>	26	27.08
	<b>Not at all</b>	3	3.13
	<b>Total</b>	96	100.00
<b>Cost Reduction</b>			
		<b>Frequency</b>	<b>Percent</b>
<b>Valid</b>	<b>Very Much</b>	46	47.92
	<b>Moderate</b>	39	40.63
	<b>Not at all</b>	11	11.46
	<b>Total</b>	96	100.00
<b>Decision Making</b>			
		<b>Frequency</b>	<b>Percent</b>
<b>Valid</b>	<b>Very Much</b>	44	45.83
	<b>Moderate</b>	35	36.46

	<b>Not at all</b>	17	17.71
	<b>Total</b>	96	100.00
<b>Decision Making</b>			
		<b>Frequency</b>	<b>Percent</b>
<b>Valid</b>	<b>Very Much</b>	78	81.25
	<b>Moderate</b>	15	15.63
	<b>Not at all</b>	3	3.13
	<b>Total</b>	96	100.00
<b>Fraud Detection</b>			
		<b>Frequency</b>	<b>Percent</b>
<b>Valid</b>	<b>Very Much</b>	45	46.88
	<b>Moderate</b>	39	40.63
	<b>Not at all</b>	12	12.50
	<b>Total</b>	96	100.00
<b>Customer Service</b>			
		<b>Frequency</b>	<b>Percent</b>
<b>Valid</b>	<b>Very Much</b>	50	52.08
	<b>Moderate</b>	35	36.46
	<b>Not at all</b>	11	11.46
	<b>Total</b>	96	100.00

**Table 0-4: Question 20 statistics**

**21. Which of the following do you consider weaknesses from the use of technology and to what extent?**

**Complexity**

		Frequency	Percent
<b>Valid</b>	<b>Very Much</b>	22	22.92
	<b>Moderate</b>	51	53.13
	<b>Not at all</b>	23	23.96
	<b>Total</b>	96	100.00
<b>Data Security - Data Breaches - Data Privacy</b>			
		Frequency	Percent
<b>Valid</b>	<b>Very Much</b>	37	38.54
	<b>Moderate</b>	48	50.00
	<b>Not at all</b>	11	11.46
	<b>Total</b>	96	100.00
<b>Dependence on Technology</b>			
		Frequency	Percent
<b>Valid</b>	<b>Very Much</b>	59	61.46
	<b>Moderate</b>	29	30.21
	<b>Not at all</b>	8	8.33
	<b>Total</b>	96	100.00
<b>Cyber Security Risks</b>			
		Frequency	Percent
<b>Valid</b>	<b>Very Much</b>	53	55.21
	<b>Moderate</b>	38	39.58
	<b>Not at all</b>	5	5.21
	<b>Total</b>	96	100.00
<b>Cost and maintenance of Technology</b>			

		Frequency	Percent
<b>Valid</b>	<b>Very Much</b>	43	44.79
	<b>Moderate</b>	42	43.75
	<b>Not at all</b>	11	11.46
	<b>Total</b>	96	100.00
<b>Lack of skilled personnel to use new tools</b>			
		Frequency	Percent
<b>Valid</b>	<b>Very Much</b>	50	52.08
	<b>Moderate</b>	39	40.63
	<b>Not at all</b>	7	7.29
	<b>Total</b>	96	100.00
<b>Loss of accounting skills (basic accounting skills performed by computers)</b>			
		Frequency	Percent
<b>Valid</b>	<b>Very Much</b>	47	48.96
	<b>Moderate</b>	34	35.42
	<b>Not at all</b>	15	15.63
	<b>Total</b>	96	100.00

Table 0-5: Question 21 statistics

## Gender

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
	Between Groups	0.006	1	0.006	0.010	0.919

9. I am properly trained to use accounting tools of my company (e.g. ERP).	Within Groups	55.619	94	0.592		
	Total	55.625	95			
10. I can adapt to technologically changing accounting tools.	Between Groups	0.130	1	0.130	0.439	0.509
	Within Groups	27.859	94	0.296		
	Total	27.990	95			
11. I could be more efficient on my work if I had information technology related education.	Between Groups	0.003	1	0.003	0.004	0.950
	Within Groups	64.497	94	0.686		
	Total	64.500	95			
12. Technology has increased the complexity of accounting tools.	Between Groups	2.802	1	2.802	3.065	0.083
	Within Groups	85.937	94	0.914		
	Total	88.740	95			
13. Technology has improved the efficiency of accounting tasks.	Between Groups	0.000	1	0.000	0.001	0.982
	Within Groups	30.656	94	0.326		
	Total	30.656	95			
14. Technology will improve the efficiency of accounting tasks in the next 5 years.	Between Groups	0.460	1	0.460	1.080	0.301
	Within Groups	40.040	94	0.426		
	Total	40.500	95			
15. Traditional accounting role will become obsolete due to technology.	Between Groups	0.053	1	0.053	0.064	0.801
	Within Groups	78.436	94	0.834		
	Total	78.490	95			
16. Evolution of technology threatens accountants' work.	Between Groups	0.263	1	0.263	0.270	0.605
	Within Groups	91.695	94	0.975		
	Total	91.958	95			

17.a. Are you aware of Big Data technology?	Between Groups	0.017	1	0.017	0.068	0.795
	Within Groups	23.608	94	0.251		
	Total	23.625	95			
17.b. Are you aware of AI technology?	Between Groups	0.051	1	0.051	0.243	0.623
	Within Groups	19.782	94	0.210		
	Total	19.833	95			
17.c. Are you aware of Cloud technology?	Between Groups	0.040	1	0.040	0.422	0.518
	Within Groups	8.918	94	0.095		
	Total	8.958	95			
17.d. Are you aware of Chatbots technology (ChatGPT, CoPilot)?	Between Groups	0.272	1	0.272	1.443	0.233
	Within Groups	17.728	94	0.189		
	Total	18.000	95			
17.e. Are you aware of Automation technology (RPA, Uipath, Microsoft Power Automate)?	Between Groups	0.756	1	0.756	3.148	0.079
	Within Groups	22.577	94	0.240		
	Total	23.333	95			
17.f. Are you aware of Machine Learning technology?	Between Groups	0.137	1	0.137	0.550	0.460
	Within Groups	23.353	94	0.248		
	Total	23.490	95			
18.a. Do you use Big Data technology in your work for accounting purposes?	Between Groups	0.030	1	0.030	0.053	0.818
	Within Groups	53.303	94	0.567		
	Total	53.333	95			
18.b. Do you use AI technology in your work for accounting purposes?	Between Groups	1.288	1	1.288	2.962	0.089
	Within Groups	40.868	94	0.435		
	Total	42.156	95			

18.c. Do you use Cloud technology in your work for accounting purposes?	Between Groups	0.003	1	0.003	0.009	0.924
	Within Groups	32.986	94	0.351		
	Total	32.990	95			
18.d. Do you use Chatbots technology (ChatGPT, CoPilot) in your work for accounting purposes?	Between Groups	0.001	1	0.001	0.002	0.962
	Within Groups	38.239	94	0.407		
	Total	38.240	95			
18.e. Do you use Automations technology (RPA, Uipath, Microsoft Power Automate) in your work for accounting purposes?	Between Groups	1.135	1	1.135	1.962	0.165
	Within Groups	54.355	94	0.578		
	Total	55.490	95			
18.f. Do you use Machine Learning technology in your work for accounting purposes?	Between Groups	0.764	1	0.764	1.882	0.173
	Within Groups	38.142	94	0.406		
	Total	38.906	95			
19.a. Do you believe that Big Data technology will improve accounting processes in the future?	Between Groups	0.515	1	0.515	0.631	0.429
	Within Groups	76.642	94	0.815		
	Total	77.156	95			
19.b. Do you believe that AI technology will improve accounting processes in the future?	Between Groups	0.345	1	0.345	0.526	0.470
	Within Groups	61.562	94	0.655		
	Total	61.906	95			
19.c. Do you believe that Cloud technology will improve accounting processes in the future?	Between Groups	1.399	1	1.399	2.743	0.101
	Within Groups	47.935	94	0.510		
	Total	49.333	95			

19.d. Do you believe that Chatbots technology (ChatGPT, CoPilot) will improve accounting processes in the future?	Between Groups	2.396	1	2.396	4.063	<b>0.047</b>
	Within Groups	55.437	94	0.590		
	Total	57.833	95			
19.e. Do you believe that Automations technology (RPA, Uipath, Microsoft Power Automate) will improve accounting processes in the future?	Between Groups	1.912	1	1.912	2.438	0.122
	Within Groups	73.713	94	0.784		
	Total	75.625	95			
19.f. Do you believe that Machine Learning technology will improve accounting processes in the future?	Between Groups	0.164	1	0.164	0.204	0.653
	Within Groups	75.493	94	0.803		
	Total	75.656	95			
20.a. To what extent are accounting processes improved with the use of technology regarding category "Efficiency - Speed - Automation"?	Between Groups	0.053	1	0.053	0.204	0.652
	Within Groups	24.436	94	0.260		
	Total	24.490	95			
20.b. To what extent are accounting processes improved with the use of technology regarding category "Less manual actions, errors - repetitive tasks"?	Between Groups	0.546	1	0.546	1.537	0.218
	Within Groups	33.412	94	0.355		
	Total	33.958	95			
	Between Groups	1.135	1	1.135	2.934	0.090

20.c. To what extent are accounting processes improved with the use of technology regarding category "Compliance with Regulations"?	Within Groups	36.355	94	0.387		
	Total	37.490	95			
20.d. To what extent are accounting processes improved with the use of technology regarding category "Competitiveness"?	Between Groups	0.606	1	0.606	1.523	0.220
	Within Groups	37.384	94	0.398		
	Total	37.990	95			
20.e. To what extent are accounting processes improved with the use of technology regarding category "Real time data and insights"?	Between Groups	0.095	1	0.095	0.343	0.560
	Within Groups	26.144	94	0.278		
	Total	26.240	95			
20.f. To what extent are accounting processes improved with the use of technology regarding category "Data Accuracy"?	Between Groups	0.077	1	0.077	0.267	0.607
	Within Groups	27.256	94	0.290		
	Total	27.333	95			
20.g. To what extent are accounting processes improved with the use of technology regarding category "Cost Reduction"?	Between Groups	0.032	1	0.032	0.068	0.795
	Within Groups	44.208	94	0.470		
	Total	44.240	95			

20.h. To what extent are accounting processes improved with the use of technology regarding category "Improved Decision Making"?	Between Groups	0.004	1	0.004	0.007	0.931
	Within Groups	53.402	94	0.568		
	Total	53.406	95			
20.i. To what extent are accounting processes improved with the use of technology regarding category "Reporting"?	Between Groups	0.075	1	0.075	0.316	0.575
	Within Groups	22.331	94	0.238		
	Total	22.406	95			
20.j. To what extent are accounting processes improved with the use of technology regarding category "Fraud Detection"?	Between Groups	0.185	1	0.185	0.383	0.537
	Within Groups	45.471	94	0.484		
	Total	45.656	95			
20.k. To what extent are accounting processes improved with the use of technology regarding category "Customer Service"?	Between Groups	0.515	1	0.515	1.084	0.301
	Within Groups	44.642	94	0.475		
	Total	45.156	95			
21.a. To what extent do you consider "Complexity" is a weakness from the use of technology?	Between Groups	0.250	1	0.250	0.525	0.470
	Within Groups	44.740	94	0.476		
	Total	44.990	95			
21.b. To what extent do you consider "Data	Between Groups	1.419	1	1.419	3.374	0.069
	Within Groups	39.539	94	0.421		

Security - Data Breaches - Data Privacy" is a weakness from the use of technology?	Total	40.958	95			
21.c. To what extent do you consider "Dependence on Technology" is a weakness from the use of technology?	Between Groups	1.172	1	1.172	2.845	0.095
	Within Groups	38.734	94	0.412		
	Total	39.906	95			
21.d. To what extent do you consider "Cyber security risks" is a weakness from the use of technology?	Between Groups	0.000	1	0.000	0.000	1.000
	Within Groups	34.000	94	0.362		
	Total	34.000	95			
21.e. To what extent do you consider "Cost and maintenance of technology" is a weakness from the use of technology?	Between Groups	0.121	1	0.121	0.263	0.609
	Within Groups	43.212	94	0.460		
	Total	43.333	95			
21.f. To what extent do you consider "Lack of skilled personnel to use new tools" is a weakness from the use of technology?	Between Groups	0.045	1	0.045	0.113	0.737
	Within Groups	37.694	94	0.401		
	Total	37.740	95			
21.g. To what extent do you consider "Loss of accounting skills (basic accounting skills	Between Groups	0.019	1	0.019	0.035	0.851
	Within Groups	51.314	94	0.546		
	Total	51.333	95			

performed by computers)" is a weakness from the use of technology?"									
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**Table 0-6: ANOVA results for gender**

Descriptives									
	Gender	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Min.	Max.
						Lower Bound	Upper Bound		
19.d. Do you believe that Chatbots technology (ChatGPT, CoPilot) will improve accounting processes in the future?	Male	38	0.26	0.601	0.098	0.07	0.46	0	2
	Female	58	0.59	0.859	0.113	0.36	0.81	0	2
	Total	96	0.46	0.780	0.080	0.30	0.62	0	2

**Table 0-7: Descriptive results for gender**

### Age

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
9. I am properly trained to use accounting tools of my company (e.g. ERP).	Between Groups	0.445	4	0.111	0.184	0.946
	Within Groups	55.180	91	0.606		
	Total	55.625	95			

10. I can adapt to technologically changing accounting tools.	Between Groups	1.389	4	0.347	1.188	0.322
	Within Groups	26.601	91	0.292		
	Total	27.990	95			
11. I could be more efficient on my work if I had information technology related education.	Between Groups	8.624	4	2.156	3.511	<b>0.010</b>
	Within Groups	55.876	91	0.614		
	Total	64.500	95			
12. Technology has increased the complexity of accounting tools.	Between Groups	1.816	4	0.454	0.475	0.754
	Within Groups	86.924	91	0.955		
	Total	88.740	95			
13. Technology has improved the efficiency of accounting tasks.	Between Groups	1.350	4	0.338	1.048	0.387
	Within Groups	29.306	91	0.322		
	Total	30.656	95			
14. Technology will improve the efficiency of accounting tasks in the next 5 years.	Between Groups	1.576	4	0.394	0.921	0.455
	Within Groups	38.924	91	0.428		
	Total	40.500	95			
15. Traditional accounting role will become obsolete due to technology.	Between Groups	3.423	4	0.856	1.037	0.392
	Within Groups	75.066	91	0.825		
	Total	78.490	95			
	Between Groups	4.830	4	1.208	1.261	0.291

16. Evolution of technology threatens accountants' work.	Within Groups	87.128	91	0.957		
	Total	91.958	95			
17.a. Are you aware of Big Data technology?	Between Groups	0.578	4	0.145	.571	0.684
	Within Groups	23.047	91	0.253		
	Total	23.625	95			
17.b. Are you aware of AI technology?	Between Groups	0.499	4	0.125	0.587	0.673
	Within Groups	19.335	91	0.212		
	Total	19.833	95			
17.c. Are you aware of Cloud technology?	Between Groups	0.172	4	0.043	0.445	0.776
	Within Groups	8.786	91	0.097		
	Total	8.958	95			
17.d. Are you aware of Chatbots technology (ChatGPT, CoPilot)?	Between Groups	1.111	4	0.278	1.496	0.210
	Within Groups	16.889	91	0.186		
	Total	18.000	95			
17.e. Are you aware of Automation technology (RPA, Uipath, Microsoft Power Automate)?	Between Groups	1.228	4	0.307	1.263	0.290
	Within Groups	22.106	91	0.243		
	Total	23.333	95			
17.f. Are you aware of Machine Learning technology?	Between Groups	1.585	4	0.396	1.647	0.169
	Within Groups	21.904	91	.241		

	Total	23.490	95			
18.a. Do you use Big Data technology in your work for accounting purposes?	Between Groups	6.931	4	1.733	3.398	<b>0.012</b>
	Within Groups	46.403	91	0.510		
	Total	53.333	95			
18.b. Do you use AI technology in your work for accounting purposes?	Between Groups	1.133	4	0.283	0.628	0.643
	Within Groups	41.023	91	0.451		
	Total	42.156	95			
18.c. Do you use Cloud technology in your work for accounting purposes?	Between Groups	2.872	4	0.718	2.169	0.079
	Within Groups	30.118	91	0.331		
	Total	32.990	95			
18.d. Do you use Chatbots technology (ChatGPT, CoPilot) in your work for accounting purposes?	Between Groups	0.525	4	0.131	0.317	0.866
	Within Groups	37.714	91	0.414		
	Total	38.240	95			
18.e. Do you use Automations technology (RPA, Uipath, Microsoft Power Automate) in your work for accounting purposes?	Between Groups	8.271	4	2.068	3.985	<b>0.005</b>
	Within Groups	47.219	91	0.519		
	Total	55.490	95			
18.f. Do you use Machine Learning	Between Groups	2.130	4	0.533	1.318	0.269
	Within Groups	36.776	91	0.404		

technology in your work for accounting purposes?	Total	38.906	95			
19.a. Do you believe that Big Data technology will improve accounting processes in the future?	Between Groups	2.117	4	0.529	0.642	0.634
	Within Groups	75.039	91	0.825		
	Total	77.156	95			
19.b. Do you believe that AI technology will improve accounting processes in the future?	Between Groups	3.500	4	0.875	1.363	0.253
	Within Groups	58.406	91	0.642		
	Total	61.906	95			
19.c. Do you believe that Cloud technology will improve accounting processes in the future?	Between Groups	1.573	4	0.393	0.749	0.561
	Within Groups	47.760	91	0.525		
	Total	49.333	95			
19.d. Do you believe that Chatbots technology (ChatGPT, CoPilot) will improve accounting processes in the future?	Between Groups	1.942	4	0.485	0.790	0.534
	Within Groups	55.891	91	0.614		
	Total	57.833	95			
19.e. Do you believe that Automations technology (RPA, Uipath, Microsoft Power Automate) will improve accounting processes in the future?	Between Groups	1.913	4	0.478	0.591	0.670
	Within Groups	73.712	91	0.810		
	Total	75.625	95			
19.f. Do you believe that Machine Learning technology will improve	Between Groups	1.212	4	0.303	0.370	0.829
	Within Groups	74.444	91	0.818		

accounting processes in the future?	Total	75.656	95			
20.a. To what extent are accounting processes improved with the use of technology regarding category "Efficiency - Speed - Automation"?	Between Groups	.965	4	0.241	0.933	0.448
	Within Groups	23.524	91	0.259		
	Total	24.490	95			
20.b. To what extent are accounting processes improved with the use of technology regarding category "Less manual actions, errors - repetitive tasks"?	Between Groups	1.075	4	0.269	0.744	0.565
	Within Groups	32.883	91	0.361		
	Total	33.958	95			
20.c. To what extent are accounting processes improved with the use of technology regarding category "Compliance with Regulations"?	Between Groups	1.805	4	0.451	1.151	0.338
	Within Groups	35.684	91	0.392		
	Total	37.490	95			
20.d. To what extent are accounting processes improved with the use of technology regarding category "Competitiveness"?	Between Groups	2.049	4	0.512	1.297	0.277
	Within Groups	35.940	91	0.395		
	Total	37.990	95			
20.e. To what extent are accounting processes improved with the use of	Between Groups	0.591	4	0.148	0.524	0.718
	Within Groups	25.648	91	0.282		

technology regarding category "Real time data and insights"?	Total	26.240	95			
20.f. To what extent are accounting processes improved with the use of technology regarding category "Data Accuracy"?	Between Groups	1.032	4	0.258	0.893	0.472
	Within Groups	26.301	91	0.289		
	Total	27.333	95			
20.g. To what extent are accounting processes improved with the use of technology regarding category "Cost Reduction"?	Between Groups	0.695	4	0.174	0.363	0.834
	Within Groups	43.544	91	0.479		
	Total	44.240	95			
20.h. To what extent are accounting processes improved with the use of technology regarding category "Improved Decision Making"?	Between Groups	1.442	4	0.360	0.631	0.642
	Within Groups	51.965	91	.571		
	Total	53.406	95			
20.i. To what extent are accounting processes improved with the use of technology regarding category "Reporting"?	Between Groups	0.386	4	0.096	0.399	0.809
	Within Groups	22.020	91	0.242		
	Total	22.406	95			
20.j. To what extent are accounting processes improved with the use of	Between Groups	0.779	4	0.195	0.395	0.812
	Within Groups	44.877	91	0.493		

technology regarding category "Fraud Detection"?	Total	45.656	95			
20.k. To what extent are accounting processes improved with the use of technology regarding category "Customer Service"?	Between Groups	1.833	4	0.458	0.962	0.432
	Within Groups	43.323	91	0.476		
	Total	45.156	95			
21.a. To what extent do you consider "Complexity" is a weakness from the use of technology?	Between Groups	3.422	4	0.856	1.873	0.122
	Within Groups	41.567	91	0.457		
	Total	44.990	95			
21.b. To what extent do you consider "Data Security - Data Breaches - Data Privacy" is a weakness from the use of technology?	Between Groups	1.760	4	0.440	1.022	0.400
	Within Groups	39.198	91	0.431		
	Total	40.958	95			
21.c. To what extent do you consider "Dependence on Technology" is a weakness from the use of technology?	Between Groups	1.946	4	0.486	1.166	0.331
	Within Groups	37.960	91	0.417		
	Total	39.906	95			
21.d. To what extent do you consider "Cyber security risks" is a	Between Groups	4.539	4	1.135	3.505	<b>0.010</b>
	Within Groups	29.461	91	0.324		

weakness from the use of technology?	Total	34.000	95			
21.e. To what extent do you consider "Cost and maintenance of technology" is a weakness from the use of technology?	Between Groups	.514	4	0.129	0.273	0.895
	Within Groups	42.819	91	0.471		
	Total	43.333	95			
21.f. To what extent do you consider "Lack of skilled personnel to use new tools" is a weakness from the use of technology?	Between Groups	2.054	4	0.514	1.310	0.272
	Within Groups	35.686	91	0.392		
	Total	37.740	95			
21.g. To what extent do you consider "Loss of accounting skills (basic accounting skills performed by computers)" is a weakness from the use of technology?	Between Groups	0.939	4	0.235	0.424	0.791
	Within Groups	50.394	91	0.554		
	Total	51.333	95			

**Table 0-8: ANOVA results age**

Descriptives									
		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Min.	Max.
						Lower Bound	Upper Bound		
						18-29	8		

11. I could be more efficient at my work if I had information technology related education.	30-39	29	3.21	0.902	0.167	2.86	3.55	1	4
	40-49	42	2.86	0.647	0.100	2.66	3.06	2	4
	50-59	15	2.60	0.910	0.235	2.10	3.10	1	4
	>60	2	1.50	0.707	0.500	-4.85	7.85	1	2
	Total	96	2.88	0.824	0.084	2.71	3.04	1	4
18.a. Do you use Big Data technology in your work for accounting purposes?	18-29	8	1.13	0.641	0.227	0.59	1.66	0	2
	30-39	29	1.10	0.724	0.135	0.83	1.38	0	2
	40-49	42	0.62	0.697	0.108	0.40	0.84	0	2
	50-59	15	1.27	0.704	0.182	0.88	1.66	0	2
	>60	2	1.00	1.414	1.000	-11.71	13.71	0	2
	Total	96	0.92	0.749	0.076	0.76	1.07	0	2
18.e. Do you use Automations technology (RPA, Uipath, Microsoft Power Automate) in your work for accounting purposes?	18-29	8	1.00	0.756	0.267	0.37	1.63	0	2
	30-39	29	1.00	0.802	0.149	0.70	1.30	0	2
	40-49	42	0.43	0.547	0.084	0.26	0.60	0	2
	50-59	15	1.07	0.884	0.228	0.58	1.56	0	2
	>60	2	1.00	1.414	1.000	-11.71	13.71	0	2
	Total	96	0.76	.764	.078	0.61	0.92	0	2
21.d. To what extent do you consider "Cyber security risks" is a weakness from the use of technology?	18-29	8	1.75	0.463	0.164	1.36	2.14	1	2
	30-39	29	1.66	0.484	0.090	1.47	1.84	1	2
	40-49	42	1.52	0.634	0.098	1.33	1.72	0	2
	50-59	15	1.07	0.594	0.153	0.74	1.40	0	2
	>60	2	1.00	0.000	0.000	1.00	1.00	1	1
	Total	96	1.50	0.598	0.061	1.38	1.62	0	2

Table 0-9: Descriptive results for age

### Educational Level

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
9. I am properly trained to use accounting tools of my company (e.g. ERP).	Between Groups	1.084	3	0.361	0.610	.610
	Within Groups	54.541	92	0.593		
	Total	55.625	95			
10. I can adapt to technologically changing accounting tools.	Between Groups	3.027	3	1.009	3.719	<b>0.014</b>
	Within Groups	24.963	92	0.271		
	Total	27.990	95			
11. I could be more efficient on my work if I had information technology related education.	Between Groups	3.742	3	1.247	1.889	0.137
	Within Groups	60.758	92	0.660		
	Total	64.500	95			
12. Technology has increased the complexity of accounting tools.	Between Groups	5.870	3	1.957	2.172	0.097
	Within Groups	82.869	92	0.901		
	Total	88.740	95			
13. Technology has improved the efficiency of accounting tasks.	Between Groups	2.992	3	0.997	3.317	<b>0.023</b>
	Within Groups	27.664	92	0.301		
	Total	30.656	95			
14. Technology will improve the efficiency of accounting tasks in the next 5 years.	Between Groups	1.357	3	0.452	1.063	0.369
	Within Groups	39.143	92	0.425		
	Total	40.500	95			
	Between Groups	2.318	3	0.773	.933	0.428
	Within Groups	76.172	92	0.828		

15. Traditional accounting role will become obsolete due to technology.	Total	78.490	95			
16. Evolution of technology threatens accountants' work.	Between Groups	8.288	3	2.763	3.038	<b>0.033</b>
	Within Groups	83.670	92	0.909		
	Total	91.958	95			
17.a. Are you aware of Big Data technology?	Between Groups	2.689	3	0.896	3.939	<b>0.011</b>
	Within Groups	20.936	92	0.228		
	Total	23.625	95			
17.b. Are you aware of AI technology?	Between Groups	2.819	3	0.940	5.082	<b>0.003</b>
	Within Groups	17.014	92	0.185		
	Total	19.833	95			
17.c. Are you aware of Cloud technology?	Between Groups	.192	3	0.064	0.672	0.572
	Within Groups	8.766	92	0.095		
	Total	8.958	95			
17.d. Are you aware of Chatbots technology (ChatGPT, CoPilot)?	Between Groups	3.842	3	1.281	8.323	<b>&lt;0.001</b>
	Within Groups	14.158	92	0.154		
	Total	18.000	95			
17.e. Are you aware of Automation technology (RPA, Uipath, Microsoft Power Automate)?	Between Groups	0.349	3	0.116	0.465	0.707
	Within Groups	22.984	92	0.250		
	Total	23.333	95			
17.f. Are you aware of Machine Learning technology?	Between Groups	1.107	3	0.369	1.517	0.215
	Within Groups	22.382	92	0.243		
	Total	23.490	95			
	Between Groups	3.426	3	1.142	2.105	0.105

18.a. Do you use Big Data technology in your work for accounting purposes?	Within Groups	49.907	92	0.542		
	Total	53.333	95			
18.b. Do you use AI technology in your work for accounting purposes?	Between Groups	4.030	3	1.343	3.242	<b>0.026</b>
	Within Groups	38.126	92	0.414		
	Total	42.156	95			
18.c. Do you use Cloud technology in your work for accounting purposes?	Between Groups	1.984	3	0.661	1.962	0.125
	Within Groups	31.006	92	0.337		
	Total	32.990	95			
18.d. Do you use Chatbots technology (ChatGPT, CoPilot) in your work for accounting purposes?	Between Groups	1.226	3	0.409	1.015	0.390
	Within Groups	37.014	92	0.402		
	Total	38.240	95			
18.e. Do you use Automations technology (RPA, Uipath, Microsoft Power Automate) in your work for accounting purposes?	Between Groups	0.971	3	0.324	0.546	0.652
	Within Groups	54.518	92	0.593		
	Total	55.490	95			
18.f. Do you use Machine Learning technology in your work for accounting purposes?	Between Groups	2.053	3	0.684	1.709	0.171
	Within Groups	36.853	92	0.401		
	Total	38.906	95			
19.a. Do you believe that Big Data technology will improve accounting processes in the future?	Between Groups	3.097	3	1.032	1.282	0.285
	Within Groups	74.059	92	0.805		
	Total	77.156	95			
	Between Groups	3.532	3	1.177	1.856	0.143

19.b. Do you believe that AI technology will improve accounting processes in the future?	Within Groups	58.374	92	0.635		
	Total	61.906	95			
19.c. Do you believe that Cloud technology will improve accounting processes in the future?	Between Groups	0.780	3	0.260	.493	0.688
	Within Groups	48.553	92	0.528		
	Total	49.333	95			
19.d. Do you believe that Chatbots technology (ChatGPT, CoPilot) will improve accounting processes in the future?	Between Groups	0.746	3	0.249	.401	0.753
	Within Groups	57.087	92	0.621		
	Total	57.833	95			
19.e. Do you believe that Automations technology (RPA, Uipath, Microsoft Power Automate) will improve accounting processes in the future?	Between Groups	1.552	3	0.517	0.643	0.590
	Within Groups	74.073	92	0.805		
	Total	75.625	95			
19.f. Do you believe that Machine Learning technology will improve accounting processes in the future?	Between Groups	3.941	3	1.314	1.685	0.176
	Within Groups	71.716	92	0.780		
	Total	75.656	95			
20.a. To what extent are accounting processes improved with the use of technology regarding category "Efficiency - Speed - Automation"?	Between Groups	0.809	3	0.270	1.048	0.375
	Within Groups	23.681	92	0.257		
	Total	24.490	95			

20.b. To what extent are accounting processes improved with the use of technology regarding category "Less manual actions, errors - repetitive tasks"?	Between Groups	2.061	3	0.687	1.981	0.122
	Within Groups	31.897	92	0.347		
	Total	33.958	95			
20.c. To what extent are accounting processes improved with the use of technology regarding category "Compliance with Regulations"?	Between Groups	3.126	3	1.042	2.790	<b>0.045</b>
	Within Groups	34.363	92	0.374		
	Total	37.490	95			
20.d. To what extent are accounting processes improved with the use of technology regarding category "Competitiveness"?	Between Groups	2.676	3	0.892	2.324	0.080
	Within Groups	35.314	92	0.384		
	Total	37.990	95			
20.e. To what extent are accounting processes improved with the use of technology regarding category "Real time data and insights"?	Between Groups	1.506	3	0.502	1.868	0.141
	Within Groups	24.733	92	0.269		
	Total	26.240	95			
20.f. To what extent are accounting processes improved with the use of technology regarding category "Data Accuracy"?	Between Groups	0.594	3	0.198	0.681	0.566
	Within Groups	26.740	92	0.291		
	Total	27.333	95			

20.g. To what extent are accounting processes improved with the use of technology regarding category "Cost Reduction"?	Between Groups	1.281	3	0.427	0.915	0.437
	Within Groups	42.958	92	0.467		
	Total	44.240	95			
20.h. To what extent are accounting processes improved with the use of technology regarding category "Improved Decision Making"?	Between Groups	1.897	3	0.632	1.130	0.341
	Within Groups	51.509	92	0.560		
	Total	53.406	95			
20.i. To what extent are accounting processes improved with the use of technology regarding category "Reporting"?	Between Groups	0.683	3	0.228	.964	0.413
	Within Groups	21.723	92	0.236		
	Total	22.406	95			
20.j. To what extent are accounting processes improved with the use of technology regarding category "Fraud Detection"?	Between Groups	5.134	3	1.711	3.885	<b>0.012</b>
	Within Groups	40.523	92	0.440		
	Total	45.656	95			
20.k. To what extent are accounting processes improved with the use of technology regarding category "Customer Service"?	Between Groups	2.006	3	0.669	1.426	0.240
	Within Groups	43.150	92	0.469		
	Total	45.156	95			
	Between Groups	0.561	3	0.187	0.387	0.763

21.a. To what extent do you consider "Complexity" is a weakness from the use of technology?	Within Groups	44.429	92	0.483		
	Total	44.990	95			
21.b. To what extent do you consider "Data Security - Data Breaches - Data Privacy" is a weakness from the use of technology?	Between Groups	0.940	3	0.313	0.720	0.542
	Within Groups	40.018	92	0.435		
	Total	40.958	95			
21.c. To what extent do you consider "Dependence on Technology" is a weakness from the use of technology?	Between Groups	0.663	3	0.221	0.518	0.671
	Within Groups	39.244	92	0.427		
	Total	39.906	95			
21.d. To what extent do you consider "Cyber security risks" is a weakness from the use of technology?	Between Groups	1.762	3	0.587	1.677	0.177
	Within Groups	32.238	92	0.350		
	Total	34.000	95			
21.e. To what extent do you consider "Cost and maintenance of technology" is a weakness from the use of technology?	Between Groups	1.804	3	0.601	1.332	0.269
	Within Groups	41.529	92	0.451		
	Total	43.333	95			
21.f. To what extent do you consider "Lack of	Between Groups	1.462	3	0.487	1.236	0.301
	Within Groups	36.278	92	0.394		

skilled personnel to use new tools" is a weakness from the use of technology?	Total	37.740	95			
21.g. To what extent do you consider "Loss of accounting skills (basic accounting skills performed by computers)" is a weakness from the use of technology?	Between Groups	1.242	3	0.414	0.761	0.519
	Within Groups	50.091	92	0.544		
	Total	51.333	95			

**Table 0-10: ANOVA results educational level**

Descriptives									
		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Min.	Max.
						Lower Bound	Upper Bound		
10. I can adapt to technologically changing accounting tools.	High School	18	2.94	0.236	0.056	2.83	3.06	2	3
	Bachelor	38	3.18	0.563	0.091	3.00	3.37	2	4
	Master	39	3.31	0.569	0.091	3.12	3.49	2	4
	PhD	1	2.00	.	.	.	.	2	2
	Total	96	3.18	0.543	0.055	3.07	3.29	2	4
13. Technology has improved the	High School	18	2.89	0.471	0.111	2.65	3.12	2	4
	Bachelor	38	3.11	0.559	0.091	2.92	3.29	2	4

efficiency of accounting tasks.	Master	39	3.31	0.569	0.091	3.12	3.49	2	4
	PhD	1	4.00	.	.	.	.	4	4
	Total	96	3.16	0.568	0.058	3.04	3.27	2	4
16. Evolution of technology threatens accountants' work.	High School	18	2.61	0.850	0.200	2.19	3.03	1	4
	Bachelor	38	2.21	0.991	0.161	1.88	2.54	1	4
	Master	39	1.85	0.961	0.154	1.53	2.16	1	4
	PhD	1	3.00	.	.	.	.	3	3
	Total	96	2.15	0.984	0.100	1.95	2.35	1	4
17.a. Are you aware of Big Data technology?	High School	18	0.67	0.485	0.114	0.43	0.91	0	1
	Bachelor	38	0.50	0.507	0.082	0.33	0.67	0	1
	Master	39	0.26	0.442	0.071	0.11	0.40	0	1
	PhD	1	1.00	.	.	.	.	1	1
	Total	96	0.44	0.499	0.051	0.34	0.54	0	1
17.b. Are you aware of AI technology?	High School	18	0.56	0.511	0.121	0.30	0.81	0	1
	Bachelor	38	0.32	0.471	0.076	0.16	0.47	0	1
	Master	39	0.13	0.339	0.054	0.02	0.24	0	1
	PhD	1	1.00	.	.	.	.	1	1
	Total	96	0.29	0.457	0.047	0.20	0.38	0	1
17.d. Are you aware of Chatbots technology	High School	18	0.56	0.511	0.121	0.30	0.81	0	1
	Bachelor	38	0.29	0.460	0.075	0.14	0.44	0	1
	Master	39	0.05	0.223	0.036	-0.02	0.12	0	1

(ChatGPT, CoPilot)?	PhD	1	1.00	.	.	.	.	1	1
	Total	96	0.25	0.435	0.044	0.16	0.34	0	1
18.b. Do you use AI technology in your work for accounting purposes?	High School	18	1.22	0.732	0.173	0.86	1.59	0	2
	Bachelor	38	0.89	0.509	0.083	0.73	1.06	0	2
	Master	39	0.74	0.715	0.115	0.51	0.98	0	2
	PhD	1	2.00	.	.	.	.	2	2
	Total	96	0.91	0.666	0.068	0.77	1.04	0	2
20.c. To what extent are accounting processes improved with the use of technology regarding the category "Compliance with Regulations"?	High School	18	1.61	0.502	0.118	1.36	1.86	1	2
	Bachelor	38	1.13	0.665	0.108	0.91	1.35	0	2
	Master	39	1.18	0.601	0.096	0.98	1.37	0	2
	PhD	1	1.00	.	.	.	.	1	1
	Total	96	1.24	0.628	0.064	1.11	1.37	0	2
20.j. To what extent are accounting processes improved with the use of	High School	18	1.72	0.461	0.109	1.49	1.95	1	2
	Bachelor	38	1.34	0.708	0.115	1.11	1.57	0	2
	Master	39	1.21	0.695	0.111	0.98	1.43	0	2
	PhD	1	0.00	.	.	.	.	0	0

technology regarding the category "Fraud Detection"?	Total	96	1.34	0.693	0.071	1.20	1.48	0	2
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**Table 0-11: Descriptive results for educational level**

### **Employment Status**

<b>ANOVA</b>							
		<b>Sum of Squares</b>	<b>df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>	
9. I am properly trained to use accounting tools of my company (e.g. ERP).	Between Groups	0.605	2	0.302	0.511	0.602	
	Within Groups	55.020	93	0.592			
	Total	55.625	95				
10. I can adapt to technologically changing accounting tools.	Between Groups	0.265	2	0.132	0.444	0.643	
	Within Groups	27.725	93	.298			
	Total	27.990	95				
11. I could be more efficient on my work if I had information technology related education.	Between Groups	2.054	2	1.027	1.530	0.222	
	Within Groups	62.446	93	0.671			
	Total	64.500	95				
12. Technology has increased the complexity of accounting tools.	Between Groups	1.882	2	0.941	1.007	0.369	
	Within Groups	86.858	93	0.934			
	Total	88.740	95				
13. Technology has improved the efficiency of accounting tasks.	Between Groups	1.207	2	0.604	1.906	0.154	
	Within Groups	29.449	93	0.317			
	Total	30.656	95				

14. Technology will improve the efficiency of accounting tasks in the next 5 years.	Between Groups	0.470	2	0.235	0.546	0.581
	Within Groups	40.030	93	0.430		
	Total	40.500	95			
15. Traditional accounting role will become obsolete due to technology.	Between Groups	2.532	2	1.266	1.550	0.218
	Within Groups	75.957	93	0.817		
	Total	78.490	95			
16. Evolution of technology threatens accountants' work.	Between Groups	4.643	2	2.321	2.473	0.090
	Within Groups	87.315	93	0.939		
	Total	91.958	95			
17.a. Are you aware of Big Data technology?	Between Groups	0.342	2	0.171	0.682	0.508
	Within Groups	23.283	93	0.250		
	Total	23.625	95			
17.b. Are you aware of AI technology?	Between Groups	0.063	2	0.031	0.148	.863
	Within Groups	19.771	93	0.213		
	Total	19.833	95			
17.c. Are you aware of Cloud technology?	Between Groups	0.059	2	0.030	0.308	0.735
	Within Groups	8.899	93	0.096		
	Total	8.958	95			
17.d. Are you aware of Chatbots technology (ChatGPT, CoPilot)?	Between Groups	0.103	2	0.051	0.267	0.766
	Within Groups	17.897	93	0.192		
	Total	18.000	95			
17.e. Are you aware of Automation technology (RPA, UiPath, Microsoft Power Automate)?	Between Groups	0.789	2	0.395	1.628	0.202
	Within Groups	22.544	93	0.242		
	Total	23.333	95			

17.f. Are you aware of Machine Learning technology?	Between Groups	0.896	2	0.448	1.844	0.164
	Within Groups	22.594	93	0.243		
	Total	23.490	95			
18.a. Do you use Big Data technology in your work for accounting purposes?	Between Groups	2.888	2	1.444	2.662	0.075
	Within Groups	50.446	93	0.542		
	Total	53.333	95			
18.b. Do you use AI technology in your work for accounting purposes?	Between Groups	1.214	2	0.607	1.379	0.257
	Within Groups	40.942	93	0.440		
	Total	42.156	95			
18.c. Do you use Cloud technology in your work for accounting purposes?	Between Groups	0.623	2	0.312	0.895	0.412
	Within Groups	32.366	93	0.348		
	Total	32.990	95			
18.d. Do you use Chatbots technology (ChatGPT, CoPilot) in your work for accounting purposes?	Between Groups	1.024	2	0.512	1.279	0.283
	Within Groups	37.216	93	0.400		
	Total	38.240	95			
18.e. Do you use Automations technology (RPA, Uipath, Microsoft Power Automate) in your work for accounting purposes?	Between Groups	3.802	2	1.901	3.420	<b>0.037</b>
	Within Groups	51.688	93	0.556		
	Total	55.490	95			
18.f. Do you use Machine Learning technology in your work for accounting purposes?	Between Groups	0.286	2	0.143	0.344	0.710
	Within Groups	38.620	93	0.415		
	Total	38.906	95			
	Between Groups	0.714	2	0.357	0.434	0.649

19.a. Do you believe that Big Data technology will improve accounting processes in the future?	Within Groups	76.442	93	0.822		
	Total	77.156	95			
19.b. Do you believe that AI technology will improve accounting processes in the future?	Between Groups	0.623	2	0.311	0.473	0.625
	Within Groups	61.283	93	0.659		
	Total	61.906	95			
19.c. Do you believe that Cloud technology will improve accounting processes in the future?	Between Groups	2.635	2	1.317	2.624	0.078
	Within Groups	46.699	93	0.502		
	Total	49.333	95			
19.d. Do you believe that Chatbots technology (ChatGPT, CoPilot) will improve accounting processes in the future?	Between Groups	0.025	2	0.013	0.020	0.980
	Within Groups	57.808	93	0.622		
	Total	57.833	95			
19.e. Do you believe that Automations technology (RPA, Uipath, Microsoft Power Automate) will improve accounting processes in the future?	Between Groups	5.955	2	2.978	3.975	<b>0.022</b>
	Within Groups	69.670	93	0.749		
	Total	75.625	95			
19.f. Do you believe that Machine Learning technology will improve accounting processes in the future?	Between Groups	2.731	2	1.366	1.741	0.181
	Within Groups	72.925	93	0.784		
	Total	75.656	95			
20.a. To what extent are accounting processes	Between Groups	0.041	2	0.020	0.077	0.926
	Within Groups	24.449	93	0.263		

improved with the use of technology regarding category "Efficiency - Speed - Automation"?	Total	24.490	95			
20.b. To what extent are accounting processes improved with the use of technology regarding category "Less manual actions, errors - repetitive tasks"?	Between Groups	2.046	2	1.023	2.981	0.056
	Within Groups	31.912	93	0.343		
	Total	33.958	95			
20.c. To what extent are accounting processes improved with the use of technology regarding category "Compliance with Regulations"?	Between Groups	0.213	2	0.106	0.266	0.767
	Within Groups	37.277	93	0.401		
	Total	37.490	95			
20.d. To what extent are accounting processes improved with the use of technology regarding category "Competitiveness"?	Between Groups	1.802	2	0.901	2.315	0.104
	Within Groups	36.188	93	0.389		
	Total	37.990	95			
20.e. To what extent are accounting processes improved with the use of technology regarding category "Real time data and insights"?	Between Groups	0.638	2	0.319	1.158	0.318
	Within Groups	25.602	93	0.275		
	Total	26.240	95			
	Between Groups	0.128	2	0.064	0.219	0.803

20.f. To what extent are accounting processes improved with the use of technology regarding category "Data Accuracy"?	Within Groups	27.205	93	0.293		
	Total	27.333	95			
20.g. To what extent are accounting processes improved with the use of technology regarding category "Cost Reduction"?	Between Groups	0.327	2	0.164	0.346	0.708
	Within Groups	43.912	93	0.472		
	Total	44.240	95			
20.h. To what extent are accounting processes improved with the use of technology regarding category "Improved Decision Making"?	Between Groups	1.449	2	0.724	1.297	0.278
	Within Groups	51.957	93	0.559		
	Total	53.406	95			
20.i. To what extent are accounting processes improved with the use of technology regarding category "Reporting"?	Between Groups	0.619	2	0.310	1.322	0.272
	Within Groups	21.787	93	0.234		
	Total	22.406	95			
20.j. To what extent are accounting processes improved with the use of technology regarding category "Fraud Detection"?	Between Groups	1.476	2	0.738	1.554	0.217
	Within Groups	44.180	93	0.475		
	Total	45.656	95			
	Between Groups	0.395	2	0.197	0.410	0.665

20.k. To what extent are accounting processes improved with the use of technology regarding category "Customer Service"?	Within Groups	44.762	93	0.481		
	Total	45.156	95			
21.a. To what extent do you consider "Complexity" is a weakness from the use of technology?	Between Groups	0.686	2	0.343	0.721	0.489
	Within Groups	44.303	93	0.476		
	Total	44.990	95			
21.b. To what extent do you consider "Data Security - Data Breaches - Data Privacy" is a weakness from the use of technology?	Between Groups	0.094	2	0.047	0.107	0.898
	Within Groups	40.864	93	0.439		
	Total	40.958	95			
21.c. To what extent do you consider "Dependence on Technology" is a weakness from the use of technology?	Between Groups	1.811	2	0.905	2.210	0.115
	Within Groups	38.095	93	0.410		
	Total	39.906	95			
21.d. To what extent do you consider "Cyber security risks" is a weakness from the use of technology?	Between Groups	0.144	2	0.072	0.197	0.821
	Within Groups	33.856	93	0.364		
	Total	34.000	95			
21.e. To what extent do you consider "Cost and	Between Groups	3.732	2	1.866	4.383	<b>0.015</b>
	Within Groups	39.601	93	0.426		

maintenance of technology" is a weakness from the use of technology?	Total	43.333	95			
21.f. To what extent do you consider "Lack of skilled personnel to use new tools" is a weakness from the use of technology?	Between Groups	0.849	2	0.424	1.070	0.347
	Within Groups	36.891	93	0.397		
	Total	37.740	95			
21.g. To what extent do you consider "Loss of accounting skills (basic accounting skills performed by computers)" is a weakness from the use of technology?	Between Groups	1.766	2	0.883	1.656	0.196
	Within Groups	49.568	93	0.533		
	Total	51.333	95			

**Table 0-12: ANOVA results employment status**

Descriptives									
		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Min.	Maximum
						Lower Bound	Upper Bound		
18.e. Do you use Automations	Accounting Employee	62	0.69	0.759	0.096	0.50	0.89	0	2

technology (RPA, Uipath, Microsoft Power Automate) in your work for accounting purposes?	Accounting Executive/ Supervisor/ Director	29	0.76	0.739	0.137	0.48	1.04	0	2
	Other	5	1.60	0.548	0.245	0.92	2.28	1	2
	Total	96	0.76	0.764	0.078	0.61	0.92	0	2
19.e. Do you believe that Automations technology (RPA, Uipath, Microsoft Power Automate) will improve accounting processes in the future?	Accounting Employee	62	0.47	0.844	0.107	0.25	0.68	0	2
	Accounting Executive/ Supervisor/ Director	29	0.59	0.907	0.168	0.24	0.93	0	2
	Other	5	1.60	0.894	0.400	0.49	2.71	0	2
	Total	96	0.56	0.892	0.091	0.38	0.74	0	2
21.e. To what extent do you consider "Cost and maintenance of technology" is a weakness from the use of technology?	Accounting Employee	62	1.47	0.564	0.072	1.32	1.61	0	2
	Accounting Executive/ Supervisor/ Director	29	1.03	0.778	0.145	0.74	1.33	0	2
	Other	5	1.40	0.894	0.400	0.29	2.51	0	2
	Total	96	1.33	0.675	0.069	1.20	1.47	0	2

**Table 0-13: Descriptive results for employment status**

<b>Coefficients<sup>a</sup></b>						
<b>Model</b>		<b>Unstandardized Coefficients</b>		<b>Standardized Coefficients</b>	<b>t</b>	<b>Sig.</b>
		<b>B</b>	<b>Std. Error</b>	<b>Beta</b>		
<b>1</b>	<b>(Constant)</b>	2.902	0.332		8.745	<0.001
	<b>Gender</b>	-0.322	0.209	-0.161	-1.537	0.128
	<b>Age</b>	0.007	0.114	0.006	0.061	0.952
	<b>Educational Level</b>	-0.372	0.138	-0.285	-2.698	<b>0.008</b>
	<b>Employment Status</b>	-.0306	0.175	-0.184	-1.751	0.083

a. Dependent Variable: Evolution of technology threatens accountants' work.

**Table 0-14: Regression "Threat" 1st trial coefficients**

<b>Coefficients<sup>a</sup></b>						
<b>Model</b>		<b>Unstandardized Coefficients</b>		<b>Standardized Coefficients</b>	<b>t</b>	<b>Sig.</b>
		<b>B</b>	<b>Std. Error</b>	<b>Beta</b>		
<b>1</b>	<b>(Constant)</b>	0.856	0.641		1.336	0.185
	9. I am properly trained to use accounting tools of my company (e.g. ERP).	-0.107	0.106	-0.083	-1.001	0.320
	10. I can adapt to technologically changing accounting tools.	-0.120	0.158	-.066	-0.759	0.450

11. I could be more efficient on my work if I had information technology related education.	-0.019	0.096	-0.016	-0.195	0.846
12. Technology has increased the complexity of accounting tools.	0.167	0.078	0.164	2.145	<b>0.035</b>
13. Technology has improved the efficiency of accounting tasks.	-0.038	0.158	-0.022	-0.238	0.812
14. Technology will improve the efficiency of accounting tasks in the next 5 years.	0.039	0.139	0.026	0.279	0.781
15. Traditional accounting role will become obsolete due to technology.	0.749	0.082	0.692	9.093	<b>&lt;0.001</b>
a. Dependent Variable: Evolution of technology threatens accountants' work.					

**Table 0-15: Regression "Threat" 2nd trial coefficients**

Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.716	0.202		8.474	<0.001
	Gender	0.075	0.128	0.062	0.586	0.559
	Age	-0.206	0.069	-0.310	-2.970	<b>0.004</b>

	<b>Educational Level</b>	0.086	0.084	0.108	1.020	0.311
	<b>Employment Status</b>	-0.021	0.107	-0.021	-0.201	0.841
a. Dependent Variable: To what extent do you consider "Cyber security risks" is a weakness from the use of technology?						

**Table 0-16: Regression "Cyber Security" 1st trial coefficients**

<b>Coefficients<sup>a</sup></b>						
<b>Model</b>		<b>Unstandardized Coefficients</b>		<b>Standardized Coefficients</b>	<b>t</b>	<b>Sig.</b>
		<b>B</b>	<b>Std. Error</b>	<b>Beta</b>		
1	(Constant)	0.907	0.433		2.094	0.039
	9. I am properly trained to use accounting tools of my company (e.g. ERP).	-0.114	0.072	-0.172	-1.592	0.115
	10. I can adapt to technologically changing accounting tools.	0.183	0.106	0.196	1.728	0.088
	11. I could be more efficient on my work if I had information technology related education.	-0.063	0.064	-0.102	-0.974	0.333
	12. Technology has increased the complexity of accounting tools.	-0.060	0.053	-0.115	-1.133	0.260
	13. Technology has improved the efficiency of accounting tasks.	0.042	0.106	0.047	0.394	0.695

14. Technology will improve the efficiency of accounting tasks in the next 5 years.	0.203	0.093	0.261	2.183	0.032
15. Traditional accounting role will become obsolete due to technology.	0.175	0.077	0.312	2.273	0.025
16. Evolution of technology threatens accountants' work.	-0.126	0.071	-0.244	-1.766	0.081

a. Dependent Variable: To what extent are accounting processes improved with the use of technology regarding category "Efficiency - Speed - Automation"?

**Table 0-17: Regression "Cyber Security", "Efficiency " 2nd trial coefficients**

<b>Coefficients<sup>a</sup></b>						
<b>Model</b>		<b>Unstandardized Coefficients</b>		<b>Standardized Coefficients</b>	<b>t</b>	<b>Sig.</b>
		<b>B</b>	<b>Std. Error</b>	<b>Beta</b>		
1	(Constant)	1.031	0.497		2.074	0.041
	9. I am properly trained to use accounting tools of my company (e.g. ERP).	-0.004	0.082	-0.005	-0.046	0.964
	10. I can adapt to technologically changing accounting tools.	-0.110	0.122	-0.100	-0.901	0.370

11. I could be more efficient on my work if I had information technology related education.	-0.022	0.074	-0.030	-0.295	0.768
12. Technology has increased the complexity of accounting tools.	-0.129	0.061	-0.209	-2.112	0.038
13. Technology has improved the efficiency of accounting tasks.	0.074	0.121	0.071	0.614	0.541
14. Technology will improve the efficiency of accounting tasks in the next 5 years.	0.298	0.107	0.326	2.798	0.006
15. Traditional accounting role will become obsolete due to technology.	0.199	0.088	0.303	2.260	0.026
16. Evolution of technology threatens accountants' work.	-0.147	0.082	-0.242	-1.794	0.076
a. Dependent Variable: To what extent are accounting processes improved with the use of technology regarding category "Less manual actions, errors - repetitive tasks"?					

**Table 0-18: Regression "Cyber Security", "Less manual actions " 2nd trial coefficients**

<b>Coefficients<sup>a</sup></b>				
<b>Model</b>	<b>Unstandardized Coefficients</b>	<b>Standardized Coefficients</b>	<b>t</b>	<b>Sig.</b>

		<b>B</b>	<b>Std. Error</b>	<b>Beta</b>		
1	(Constant)	0.987	0.564		1.750	0.084
	9. I am properly trained to use accounting tools of my company (e.g. ERP).	0.029	0.093	0.032	0.311	0.756
	10. I can adapt to technologically changing accounting tools.	-0.050	0.138	-0.039	-0.359	0.720
	11. I could be more efficient on my work if I had information technology related education.	0.145	0.084	0.174	1.735	0.086
	12. Technology has increased the complexity of accounting tools.	0.221	0.069	0.311	3.190	0.002
	13. Technology has improved the efficiency of accounting tasks.	-0.016	0.138	-0.013	-0.114	0.909
	14. Technology will improve the efficiency of accounting tasks in the next 5 years.	-0.222	0.121	-0.211	-1.834	0.070
	15. Traditional accounting role will become obsolete due to technology.	-0.216	0.100	-0.285	-2.161	0.033

	16. Evolution of technology threatens accountants' work.	0.202	0.093	0.289	2.174	0.032
a. Dependent Variable: To what extent do you consider "Complexity" is a weakness from the use of technology?						

**Table 0-19: Regression "Cyber Security", "Complexity" 3rd trial coefficients**

<b>Coefficients<sup>a</sup></b>						
<b>Model</b>		<b>Unstandardized Coefficients</b>		<b>Standardized Coefficients</b>	<b>t</b>	<b>Sig.</b>
		<b>B</b>	<b>Std. Error</b>	<b>Beta</b>		
1	(Constant)	1.822	0.549		3.320	0.001
	9. I am properly trained to use accounting tools of my company (e.g. ERP).	-0.132	0.091	-0.153	-1.450	0.151
	10. I can adapt to technologically changing accounting tools.	-0.054	0.134	-0.045	-0.401	0.689
	11. I could be more efficient on my work if I had information technology related education.	0.021	0.082	0.026	0.259	0.797
	12. Technology has increased the complexity of accounting tools.	0.236	0.068	0.347	3.490	<0.001
	13. Technology has improved the efficiency of accounting tasks.	0.088	0.134	0.076	0.661	0.511

	14. Technology will improve the efficiency of accounting tasks in the next 5 years.	-0.273	0.118	-0.271	-2.315	0.023
	15. Traditional accounting role will become obsolete due to technology.	0.024	0.097	0.033	0.247	0.805
	16. Evolution of technology threatens accountants' work.	-0.009	0.090	-0.014	-0.101	0.920
a. Dependent Variable: To what extent do you consider "Data Security - Data Breaches - Data Privacy" is a weakness from the use of technology?						

**Table 0-20: Regression "Cyber Security", "Data Breaches " 3rd trial coefficients**

<b>Coefficients<sup>a</sup></b>						
<b>Model</b>		<b>Unstandardized Coefficients</b>		<b>Standardized Coefficients</b>	<b>t</b>	<b>Sig.</b>
		<b>B</b>	<b>Std. Error</b>	<b>Beta</b>		
1	(Constant)	0.243	0.370		0.657	0.513
	20.a. To what extent are accounting processes improved with the use of technology regarding category "Efficiency - Speed - Automation"?	0.312	0.242	0.176	1.290	0.201

20.b. To what extent are accounting processes improved with the use of technology regarding category "Less manual actions, errors - repetitive tasks"?	-0.083	0.185	-0.055	-0.445	0.657
20.c. To what extent are accounting processes improved with the use of technology regarding category "Compliance with Regulations"?	-0.087	0.182	-0.060	-0.475	0.636
20.d. To what extent are accounting processes improved with the use of technology regarding category "Competitiveness"?	0.263	0.166	0.184	1.584	0.117
20.e. To what extent are accounting processes improved with the use of technology regarding category "Real time data and insights"?	-0.061	0.252	-0.035	-0.241	0.810
20.f. To what extent are accounting processes improved with the use of technology regarding category "Data Accuracy"?	0.048	0.221	0.028	0.215	0.830

20.g. To what extent are accounting processes improved with the use of technology regarding category "Cost Reduction"?	0.117	0.143	0.088	0.814	0.418
20.h. To what extent are accounting processes improved with the use of technology regarding category "Improved Decision Making"?	-0.327	0.150	-0.272	-2.188	0.032
20.i. To what extent are accounting processes improved with the use of technology regarding category "Reporting"?	-0.072	0.256	-0.039	-0.283	0.778
20.j. To what extent are accounting processes improved with the use of technology regarding category "Fraud Detection"?	-0.163	0.172	-0.126	-0.950	0.345
20.k. To what extent are accounting processes improved with the use of technology regarding category "Customer Service"?	-0.019	0.168	-0.014	-0.111	0.912

	17.a. Are you aware of Big Data technology?	0.702	0.227	0.388	3.093	0.003
	18.a. Do you use Big Data technology in your work for accounting purposes?	0.102	0.149	0.084	0.680	0.498
a. Dependent Variable: Do you believe that Big Data technology will improve accounting processes in the future?						

**Table 0-21: Regression "Big Data" 2nd trial coefficients**

<b>Coefficients<sup>a</sup></b>						
<b>Model</b>		<b>Unstandardized Coefficients</b>		<b>Standardized Coefficients</b>	<b>t</b>	<b>Sig.</b>
		<b>B</b>	<b>Std. Error</b>	<b>Beta</b>		
1	(Constant)	-0.265	0.338		-0.783	0.436
	20.a. To what extent are accounting processes improved with the use of technology regarding category "Efficiency - Speed - Automation"?	0.386	0.213	0.251	1.815	0.073
	20.b. To what extent are accounting processes improved with the use of technology regarding category "Less manual actions, errors - repetitive tasks"?	0.087	0.161	0.067	0.541	0.590

20.c. To what extent are accounting processes improved with the use of technology regarding category "Compliance with Regulations"?	-0.053	0.160	-0.043	-0.335	0.738
20.d. To what extent are accounting processes improved with the use of technology regarding category "Competitiveness"?	-0.047	0.148	-0.038	-0.318	0.751
20.e. To what extent are accounting processes improved with the use of technology regarding category "Real time data and insights"?	0.065	0.220	0.044	0.297	0.767
20.f. To what extent are accounting processes improved with the use of technology regarding category "Data Accuracy"?	0.035	0.200	0.024	0.177	0.860
20.g. To what extent are accounting processes improved with the use of technology regarding category "Cost Reduction"?	-0.049	0.126	-0.043	-0.388	0.699

20.h. To what extent are accounting processes improved with the use of technology regarding category "Improved Decision Making"?	-0.168	0.131	-0.161	-1.276	0.206
20.i. To what extent are accounting processes improved with the use of technology regarding category "Reporting"?	0.166	0.224	0.104	0.744	0.459
20.j. To what extent are accounting processes improved with the use of technology regarding category "Fraud Detection"?	0.019	0.151	0.017	0.124	0.902
20.k. To what extent are accounting processes improved with the use of technology regarding category "Customer Service"?	-0.322	0.150	-0.284	-2.149	0.035
18.d. Do you use Chatbots technology (ChatGPT, CoPilot) in your work for accounting purposes?	0.283	0.138	0.230	2.045	0.044

	17.d. Are you aware of Chatbots technology (ChatGPT, CoPilot)?	0.371	0.200	0.207	1.857	0.067
a. Dependent Variable: Do you believe that Chatbots technology (ChatGPT, CoPilot) will improve accounting processes in the future?						

**Table 0-22: Regression "Chatbots" 1st trial coefficients**

<b>Coefficients<sup>a</sup></b>						
<b>Model</b>		<b>Unstandardized Coefficients</b>		<b>Standardized Coefficients</b>	<b>t</b>	<b>Sig.</b>
		<b>B</b>	<b>Std. Error</b>	<b>Beta</b>		
1	(Constant)	0.083	0.321		0.258	0.797
	To what extent are accounting processes improved with the use of technology regarding category "Efficiency - Speed - Automation"?	0.098	0.213	0.056	0.461	0.646
	To what extent are accounting processes improved with the use of technology regarding category "Less manual actions, errors - repetitive tasks"?	0.030	0.164	0.020	0.185	0.854

To what extent are accounting processes improved with the use of technology regarding category "Compliance with Regulations"?	0.043	0.156	0.030	0.276	0.783
To what extent are accounting processes improved with the use of technology regarding category "Competitiveness"?	-0.068	0.144	-0.048	-0.470	0.639
To what extent are accounting processes improved with the use of technology regarding category "Real time data and insights"?	0.015	0.217	0.009	0.070	0.944
To what extent are accounting processes improved with the use of technology regarding category "Data Accuracy"?	-0.079	0.194	-0.047	-0.404	0.687
To what extent are accounting processes improved with the use of technology regarding category "Cost Reduction"?	0.128	0.125	0.098	1.022	0.310

To what extent are accounting processes improved with the use of technology regarding category "Improved Decision Making"?	-0.065	0.132	-0.055	-0.496	0.621
To what extent are accounting processes improved with the use of technology regarding category "Reporting"?	-0.092	0.221	-0.050	-0.414	0.680
To what extent are accounting processes improved with the use of technology regarding category "Fraud Detection"?	-0.153	0.148	-0.119	-1.034	0.304
To what extent are accounting processes improved with the use of technology regarding category "Customer Service"?	0.103	0.147	0.080	0.699	0.487
Are you aware of Automation technology (RPA, UiPath, Microsoft Power Automate)?	1.051	0.206	0.584	5.099	<0.001

	Do you use Automations technology (RPA, Uipath, Microsoft Power Automate) in your work for accounting purposes?	0.114	0.133	0.097	0.853	0.396
a. Dependent Variable: Do you believe that Automations technology (RPA, Uipath, Microsoft Power Automate) will improve accounting processes in the future?						

**Table 0-23: Regression "Automations" 1st trial coefficients**

<b>Coefficients<sup>a</sup></b>						
<b>Model</b>		<b>Unstandardized Coefficients</b>		<b>Standardized Coefficients</b>	<b>t</b>	<b>Sig.</b>
		<b>B</b>	<b>Std. Error</b>	<b>Beta</b>		
1	(Constant)	0.373	0.395		0.944	0.348
	To what extent are accounting processes improved with the use of technology regarding category "Efficiency - Speed - Automation"?	0.186	0.241	0.106	0.772	0.443
	To what extent are accounting processes improved with the use of technology regarding category "Less manual actions, errors - repetitive tasks"?	-0.176	0.182	-0.118	-0.966	0.337

To what extent are accounting processes improved with the use of technology regarding category "Compliance with Regulations"?	-0.266	0.190	-0.187	-1.399	0.165
To what extent are accounting processes improved with the use of technology regarding category "Competitiveness"?	0.193	0.168	0.137	1.148	0.254
To what extent are accounting processes improved with the use of technology regarding category "Real time data and insights"?	-0.246	0.250	-0.145	-0.984	0.328
To what extent are accounting processes improved with the use of technology regarding category "Data Accuracy"?	-0.163	0.223	-0.098	-0.732	0.466
To what extent are accounting processes improved with the use of technology regarding category "Cost Reduction"?	-0.039	0.143	-0.030	-0.274	0.785

To what extent are accounting processes improved with the use of technology regarding category "Improved Decision Making"?	-0.111	0.153	-0.093	-0.725	0.471
To what extent are accounting processes improved with the use of technology regarding category "Reporting"?	0.476	0.248	0.259	1.919	0.059
To what extent are accounting processes improved with the use of technology regarding category "Fraud Detection"?	0.086	0.170	0.067	0.505	0.615
To what extent are accounting processes improved with the use of technology regarding category "Customer Service"?	-0.230	0.167	-0.178	-1.379	0.172
Are you aware of Machine Learning technology?	0.397	0.194	0.221	2.041	0.044
Do you use Machine Learning technology in your work for accounting purposes?	0.358	0.148	0.257	2.413	0.018

a. Dependent Variable: Do you believe that Machine Learning technology will improve accounting processes in the future?

**Table 0-24: Regression “Machine Learning” 1st trial coefficients**

Author’s Statement:

I hereby expressly declare that, according to the article 8 of Law 1559/1986, this dissertation is solely the product of my personal work, does not infringe any intellectual property, personality and personal data rights of third parties, does not contain works/contributions from third parties for which the permission of the authors/beneficiaries is required, is not the product of partial or total plagiarism, and that the sources used are limited to the literature references alone and meet the rules of scientific citations.