ANGLIA RUSKIN UNIVERSITY

Adoption of Artificial Intelligence into Accounting and Finance Systems

A Major Project/Dissertation in partial fulfilment of the requirement of Anglia Ruskin University for the Degree of Bachelors (Hons) of Accounting and Finance

Submitted: April 2024

Declaration

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Dissertation Declaration

Title of Award

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DECLARATION: I declare that the above work is my own and that the material contained herein has not been substantially used in any other submission for an academic award.

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Abstract

Adoption of Artificial Intelligence into Accounting and Finance Systems

This project explored what is Artificial Intelligence, Human Intelligence, Accounting and Finance. The main aim of the dissertation was to compare the relation of the Adoption that Artificial Intelligence would have in the Accounting and Finance Systems. It explored if the technology actually poses an effect when implemented into the systems and by what means does implementation run in terms of the availability of Artificial Intelligence mediums available and applicable for this field of study. It further examined the ways in which, if founded to affect the Practitioners, it will be required to be implemented into the field of studies and career. This further included how Practitioners were required to adopt this form of technology into the current system of performance and the new variations such personnel faced. The reskilling and retaining of such personnel was discussed as a new skillset of technological advancements where machine learning became of fundamental effect. Further discussion on how these implications were advancements to the Accounting and Finance Firms and Practitioners were also spoken about in this project analysis. The concluding objective of the perks of Artificial Intelligence Involvement was also briefly discussed.

The project ended on the conclusion of the implemental impacts that AI have on firms and why and the recommendations which alluded to the research findings and the researcher's agreement towards the work obtained and analysed. It was stated that Artificial Intelligence is indeed crucial for further development in the Accounting and Finance Sector. The data used throughout this dissertation was secondary data for the conclusion of the findings of the research being conducted. The lack of secondary published data also posed an effect on the researcher's justifiability of findings of the research presented. The implications for better research was also given highlight towards where data posed limitations towards information findings. The ability to use additional sources such as primary data would have made the research more prevalent and supportive.

Additionally, a research methodology based on Wilson (2014) model of the Honeycomb Method was used. It explored the usage of a combination of pragmatic, inductive, subjective, qualitative, mixed methods and explanatory techniques where the usage of data derived from Journals, Articles, Websites, Books and Case Studies were utilized.

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Chapter 1

1.0 Introduction

Traditional Human Intelligence for bookkeeping is under current critical review and analysis based on the advancements of Artificial Intelligence impact on the Accounting and Financial Systems utilized in companies where such traditional approaches are seemingly become unfeasible for continued future development and sustainability in an ever-evolving economy.

In the scholarly arena, artificial intelligence can be similarly described as an electronic human brain as has a computation of system preferences where it is operated through a technological inputted of intellectual activity, including studies, analysis of data, logical interpretation, and observation and application of external characteristics. (Simplilearn, 2023). It includes the ability to critically retrieve information, analyse it, develop it into further processing, make and apply decisions accordingly, to produce data that humans usually manually produce. (Akinadewo, 2021). Human intelligence on the other hand is considered to be the manual application of individually developed traits, characteristics and learnt knowledge to which humans are in charge of processing and analysing data based on a set standard of application. Information may vary based on individual interpretation of data and the methods of practice. (Simplilearn, 2023). The research thesis of this paper is motivated by the implementation of Artificial Intelligence into Accounting and Finance processes and the influential threshold such technology would imposed against the current form of accounting practitioners.

1.1 Research and Context Issue

The presumption of Artificial Intelligence currently is that the system computes jobs from the simplest to the most complicated context where the information received is easily formulated according to inputted data. The Accounting and Finance (A&F) profession is currently applying human intelligence with cognitive computing technologies such as Artificial Intelligence (AI). (Gambhir & Bhattacharjee, 2021). Artificial intelligence has been increasingly rising throughout the world specially in the Asian and Pacific regions where implementation is specifically high in the Accounting and Finance sector. In China, major AI development and implementation hubs are developed in Beijing, Shanghai, Guangdong, Zhejiang, and Jiangsu where the objective is to make Chinese firms a leader in AI implementation. (MMC Ventures, 2019).

The inability to adapt to the new digitalization of technological advancement can be classified as the leading cause of the lack of artificial intelligence progressive growth in firms and therefore the prospective downfall that many firms encounter in the future. It has been intensely discussed that the advances in AI-based programming may eliminate the use of human requirement. (Kokina and Davenport, 2017). However, in the classification of AI Technology fully overtaking accounting practitioners is highly unlikely. The substance if AI will be the implemental reality the technology augments towards human responsibilities in the field and how this technology would improve one's work more sufficiently. (Steinhardt, 2023). There is an underlying risk that can be prevalent where managers view AI inclusion by practitioners in the stance where this technology can replace the level of accountants the firm may employ for the betterment of the firm economically. (Steinhardt, 2023). Many firms such as Deloitte and KPMG has implemented AI to replace bookkeeping activities. (Faggella, 2020).

The lack of AI implement means the possibility of material misstatements, lesser accuracy, lengthy projection time periods, less economical, lack of integrity and lack of correction interpretation and application of practices which human intervention are prone to consisting of. Humans are prone to inefficiencies and lesser effective production of financial information due to lowered knowledge, analysis and precise interpretation. (Jaslove, 2017). Considering the implementation of Artificial Intelligence into firms for the prevention of the abovementioned circumstances can alleviate against falsified, incorrect and incompetent data being presented.

1.2 Rationale

This research will examine the ways AI will become an adaptable function towards the Accounting profession and the ways in which the operations of accounting will change from organising and processing data to analysis and translating data (Giles, 2019). Artificial Intelligence is being developed at a swift pace where many businesses are unable to adapt accordingly to the changes. Through further software advancements, AI is progressively becoming more advance into replicating experts' behaviour and expertise, the ability for the technology to present human knowledge based on unbiased judgement will create remarkable development and changes to the accounting industry in the standard of work produced.

Artificial intelligence becomes more favourable for modernized companies who are in the era of the implementation of technological advancements as it is seen to be an effective and adaptable form for further growth and survival. (Jaslove, 2017).

AI implementation provides opportunities where new responsibilities and restraining requires to be adopted. (ICAEW, 2018). Upgrading the skillset of practitioners creates more efficiency and effectiveness where AI can be used as an advancement tool. (Gambhir & Bhattacharjee, 2021). The removal of human biases, self-interest, falsifying, personal judgement and misrepresentation of financial information which can in many cases overshadow professional requirements is an aim AI implementation represents. AI strengthens the internal controls and effectiveness within an organization. (Akinadewo, 2021). With the correlation of AI and humans, the effectiveness, control, accuracy and economic standard of a firm will overall increase positively.

1.3 Research Question

Providing the aforementioned information, the proceeding research examines and provides a stimulation of justifications discussion towards the question in the matter "How does the implementation of Artificial Intelligence over Human Intelligence in firms impact the roles of Practitioners in the Accounting and Finance Systems?"

1.4 Aim and Objectives

Aim:

To justify why the adoption of Artificial Intelligence over Human Intelligence to firms is required in the Accounting and Finance Systems.

Objectives:

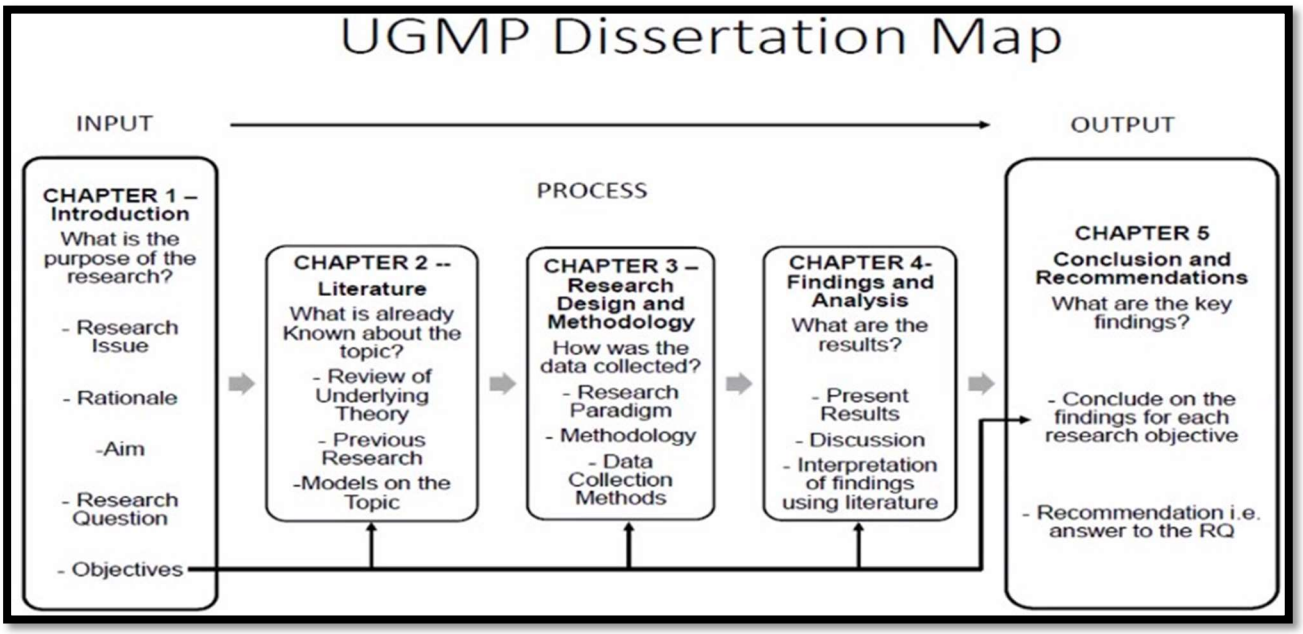
1. To determine the implemental effects that Artificial Intelligence would pose against traditional Accounting and Finance Personnel.
2. To examine the restructuring and adoption of Accounting and Finance personnel roles and responsibility which encompasses within the new job description created; retraining into modernized technology and alterations to job operations and processing.

3. To what extend does the correlation between Artificial Intelligence and Human Involvement affect Accounting and Financial Information being produced; Efficiency, Effectiveness, Control, Accuracy and Economic Standard.

1.5 Dissertation Structure

The structure examines the five chapters of research conducted and the analogy of discussion held. The first chapter outlines the introduction to the topic issue being discussed, the second chapter highlights the literature utilized to portray further knowledge where the third shows the details of the undergone research with the related methodology. The fourth chapter provides evidence towards the accusations being presented where the fifth chapter ends with conclusion consensus of topic with the required recommendations and limitations. The map is shown below as Figure 1.

Figure 1: Undergraduate Major Project Dissertation Map.



Source: Adapted from Samuel, 2024.

Chapter 2

2.0 Literature Review Introduction

This chapter provides provisions towards the literacy review of the implications of a developed technology, namely, Artificial Intelligence into Accounting and Financial Practitioners career developmental process. In specific, the main theoretical terminologies which are being explored is firstly Artificial Intelligence as the leading framework of the reasoning behind this project review where this implementation is followed by Human Intelligence involvement as the rational of correlation between these two forms of methods of work. Concluding, this chapter will extend to the precise and conceptual understanding of what is Accounting and Finance individually and the pathways in which technologies can be implemented within this career to lower the human job load, improve efficiency, improve integrity, improve control and lower operation costs.

2.1 Artificial Intelligence

Intelligence firstly can be described as the capacity to reason, plan, problem solve, think abstractly, judge, comprehend and analyse situations where the generation of response actions and sensations occur. (Saxe, et. al, 2018). The first concept being analyse is Artificial Intelligence as it describes the developed technology further application towards traditional accounting.

According to Professor John McCarthy in 1955, a pooled concept where the logic of AI consists of a variety of disciplinarians such as human language simulation, neuron nets, complexity theory and human concepts are transformed into "thinking machines." (McCarthy, 1970). An opposing view presented by Cordeschi, 2007, states that Claude Shannon critiques Artificial Intelligence where the technology is incapable of thinking as humans where one's feelings, emotions, intuition and thoughts cannot be replicated into these systems. (Cordeschi, 2007). AI has created a transformative method of providing cognitive replacement for some Human Intelligence as this system has a precise comprehension of historical and regulatory data inputted related to this field of study. (Marr, 2022).

The following part of this paper describes a definition presented by Oxford Learning Dictionary, 2023, of the developmental study of computerized intelligence and its ability to interpret and portray human behaviour such as visual perception, speech recognition, decision-making and translation of languages. (Oxford University Press, 2023). The Turning Test critique created by Alan Turning in 1950 stipulates the determinants if AI can think intellectually like humans where

an example of the “Imitation Game” presents the vulnerability of AI machines in the detection of personnel lack of integrity or misleading actions. (French, 2000). With the digitalized world, AI replaces analogue tools as it maintains the ledger of financial information through security and verifiability due to the system’s access to global confidential forums where information can be verified prior to being recorded. (Kunselman, 2022). Through the usage of AI Blockchain Technologies, Accounting and Finance personnel can act as the centralized authorities to control the security and record keeping of financial data imputed into these systems where control, efficiency and reliability can be an adaptive trait. (Chainlink, 2024). Therefore, it can be understood that AI does not replace accounting practitioners but rather create an automotive form of producing accounting information to these practitioners in a faster, more efficient demeanour, where better interpretive skills can be stimulated and transferred to clients. (Kunselman, 2022).

The robotic engineering which controls the systemic review and production of financial information is an objective AI tries to resolve. AI contains and maintain a fully intellectual factor based on theoretical data inputted where inefficiencies and unqualifiable results are deterred unlike instances where there may be human mishaps or misconceptions which can decrease the quality of work published. (Lexology, 2017). AI strives to eliminate such occurrences.

2.2 Human Intelligence

In continuance with the abovementioned topic of Artificial Intelligence, the reverse is being presented where the topic of Human Intelligence will now be discussed. Firstly, a leading researcher, Mr. Arthur Jensen in 1989, proclaims human intelligence to be ``a heuristic hypothesis" which humans contain and develop naturally in terms of ``quantitative biochemical and physiological conditions." (McCarthy, 1970). One feature AI will continue to miss obtaining is the physiological storage and creation of cognitive function due to the intensive structure and the impossible access and formulation of neuroscientific methods and understanding. (Adolphs, 2015). However, in Accounting and Finance, these feature are null and void. This career does not require the involvement of this form of functionality as its work consist of regulatory data which has been produced by humans where standards and stipulations are to be followed rather than emotions and feelings. Where reasoning is required, AI has the ability to use previous case law and apply the implications as required based on previous similar occurrences. Failure of such will be traced back to human intelligence part in accounting and finance where the involvement of

human supervision will hence be required when overseeing these thinking machines. (ICAEW., 2018).

Previous studies by Saxe, 2018 evaluating Human Intelligence was observed to be consistent similarly to the definition provided by Mr. Jensen where it is stipulated the intelligence of humans can be described as the sensory input of specific neuronal connections and applications which when constructed together forms an internal, natural form of learning and comprehension (Saxe, et. al, 2018). With relation to the issue the paper is being presented on, severe neurological components are not required in this field of interest. (Dipasquale, 2016). Hence, AI can be suited towards assisting humans in the Accounting and Finance field as other factors of processes such as large data processing, understanding patterns and perceiving complex situations based on the regulatory guidelines and maintaining consistency and fairness throughout can be obtained. Where Artificial Intelligence is concerned, these machines are not prone to boredom, tiredness, subconscious depressants, and misconstrued judgement as opposed to human intervention. AI implementation into firms will also alleviate high cost of external firmware required for the security and transmission of financial information. (ICAEW., 2018). AI should be described as a business need rather than simply; technology capabilities.

On the final definition of Human Intelligence, the notion of human intelligence is the mental device for performance and development of one's values which stems from the abilities and heuristics that are required daily behavioural solving problems skills. The Tools to Theories developed by Gigerenzer can be used as evidence for a heuristic measure used for cognitive science. (Raab, 2004). It is imperative to note that human intervention with these thinking machines is required as there may be instances as previously mentioned where the creators, humans, are required to overview the work formulated by these machines in the odds where issues and errors may still occur. (ICAEW., 2018). In the ever possible event that AI may have shortfalls, humans in this career sector must be capable of adapting accordingly to the changes in the technological environment where retraining and further certification in AI may be implemented to ensure these practitioners understands the concept of AI and can operate with these advancements in the daily effort.

2.3 Accounting

Throughout this literature, it's examined the relations between Artificial Intelligence and Human Intelligence in the workspace of Accounting and Finance. Accounting was described by Canibano, et. al, in 2000 to provide a series of financial statements that assists in the decision making process of both current and potential creditors and investors. The author mentioned the information presented should be of relevant materiality based on the importance and significance these elements would attain if it is concealed now, by how much will it affect the present or future synopsis of the company and its economic standard. (Canibano, et. al, 2000). A review by Carnegie et al., 2021 complains that the current definitions of accounting, despite the variation, the actual definitions require updating as the terminology overly places emphasis on technical matters. Rather the social and moral practice should be implemented into the terms of definitions. (Carnegie, 2020). With the similar understanding of the technical aspect of A&F, Robotic Process Automation (RPA) such as Invoice Optical Character Recognition (OCR) and Natural Language Processing (NLP) has been proven and seen to improve the efficiency of accounting and finance. These genetic algorithms have been designed to decrease the human workload with the intention of the program to eliminate errors, improve materiality assessments, improve internal control evaluations, forecasting going concern judgments and produce trustworthy information based on the inputted data and technical review. (Yi, Z. et al., 2023).

Further analysis by Accountingverse, 2022 mentions accounting to be the 'language of business' as it simply communicates the business status through information presented. This is the final accounting report to be presented as it delivers the current status of the business as well as the future prospective of what the business will become. (Accountingverse, 2022). Furthermore, it is integral to note that Accounting is governed by rules and principals which constantly become updated. Such bodies are International Financial Reporting Standard and Generally Accepted Accounting Principles. AI implementation into A&F has the built skillset of performing creative academic judgement to be capable of precisely performing accounting functions precisely similarly to that of humans. This is where the information presented by these technologies would require review by third parties; humans. (Yi, Z. et al., 2023).

According to the American Institute of Certified Public Accountants (AICPA), 2020, accounting is the "the art of recording, classifying, and summarizing in a significant manner and in terms of money, transactions and events which are, in part at least of financial character, and interpreting

the results thereof." (Certified Public Accountants, 2020). Leading with the interpretation of data, traditionally, problem-solving would have been done by practitioners' and would have been based on experience, ability to comprehend and industry knowledge which can create subjective conclusions. AI on the other hand, eliminates to some extend this issue where AI receives information objectively which is not based on perception but rather matching data concepts and creating a synthesize conclusion based on direct theoretical data without loopholes and shortcuts to the system likewise the differentiation of human perception. (Yi, Z. et al., 2023).

2.4 Finance

Based on the information discussed about Accounting, the Finance Theory as described by Copeland and Weston (1988) is the microeconomics of six theories which are the Utility Theory, State Preference Theory, Mean Variance Theory, Arbitrage Pricing Theory, Option Pricing Theory, Miller Theorems and Market Efficiency. (Isaac, 1994). AI technology can assist in the automation of simple and repetitive processes for similar instances where the framework of these theories mentioned are interlinked and critical information from bulky data can be extracted in order to make more accurate and objective decisions. (Yi, Z. et al., 2023). Concealing of information which is evident in the A&F field is limited due to automotive processing as AI systems are built for the detection of fraudulent activity where security measures are placed for online transacting of information where the system is adaptive to the recognition of behavioural situations which may appear as a potential fraud. (Schmelzer, 2023).

Vipond, 2024 defines the terminology as a managerial creational and study modem of monetary activities in terms of investing into stocks, bonds and GICs (guaranteed investment certificates), lending towards loans and mortgages, borrowing from institutional investors for business growth, saving for future usage, budgeting planning and forecasting for liabilities due. (Vipond, 2024). As known, AI provides speech recognition and sentiment analysis of data but the technology also has a forum of anomaly detection. It has the capabilities to detect fraudulent transactions, financial crime, spoofing in trading, and cyber threats. Whilst doing such, it makes the information translated into comprehendible terms to regular users who may lack knowledge. For instances where Banks utilize AI systems for namely; customer centre, the technology allows for a lower cost and better time management as these automotive responses analysis information presented and responds accordingly based on data related. (Google Cloud Terms, 2023).

“Business finance is that activates which is concerned with the acquisition and conservation of capital funds in meeting the financial need and overall objective of business enterprise,” claims Wheeler 1938. (Minhaz, 2024). This allows for coordination, control and better application towards the financial aspects of firms as issues, policies and related theories such as those mentioned by Copeland and Weston are integrated into the business system which can then be utilized by individuals, organizations, and governments. Artificial Intelligence can help automate workflows and processes whilst working autonomously and responsibly. Namely, with the linkage of monitoring network traffic for cybersecurity or a personalized approach with more flexibility in online banking suited towards customer satisfaction. This increases the speed of information processing faster than that of human intelligence as well as reduced operational cost endured and the risk issues due to the potential for human error. Hence, not only making the system risk-proof to some extent but more viable for faster, reliable and cost effective ways of operations. (Schmelzer, 2023).

2.5 Conclusion

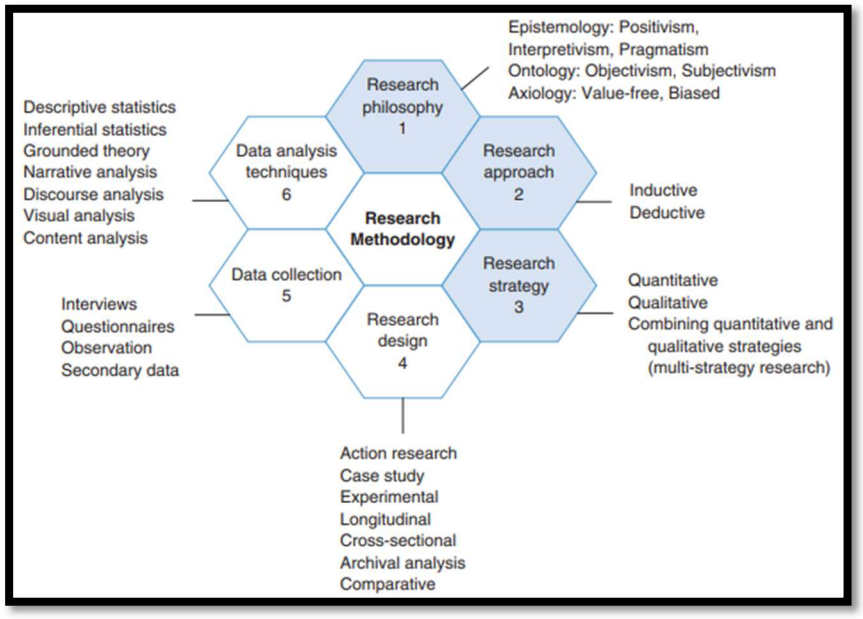
It is of the concluding view that a machine simply cannot take responsibility for work to be produced by Humans. Neither can it produce cognitive function such as opinions and emotions like that of human. However, as mentioned, due to the type of work, these functions seem irrelevant, hence making the technology useful. Therefore, a requirement of machines supervisors is implemental when AI has been utilized in firms to ensure it produces information of regulatory standards and stipulations as these machines, although designed for no failure, may have complexities at times. Therefore, it is prevalent that the interference of human involvement is still required, however, the machines acts as a form of assistance towards these practitioner’s tedious tasks.

Chapter 3

3.0 Research Design and Methodology Introduction

This chapter proceeds to explore the research design and methodology undertaken for the production of the dissertation. This is the systematically outline of obtaining evidential requirements to conduct the research and the ways in which such information was collected and then further interpreted to provide support towards discussion presented. (Wilson, 2014). Saunders, et al. (2019), similarly states the purpose of the research design is how the researcher planned to answer the research questions through the utilization of data, collection of data, analysis of data, ethical constraints and limitation involved. (Saunders, 2019). These methods were created for the guidance towards the way in which research is to be conducted to obtain maximum validity and reliability with the possible eliminations of errors within the framework of collection of data. (Wilson, 2014). Moreover, this dissertation follows a Honeycomb Model (Wilson, 2014), see Figure 2 below, as this method provides an in-depth analysis and exploration with specific focus towards the research paradigm which consist of the research philosophy, research approach and research strategy. The proceeding elements are the research design, data collection instruments, data analysis techniques, ethical issues and limitation of research methodology. (Wilson, 2014).

Figure 2: Honeycomb Model.



Source: Adapted from Wilson, 2014.

3.1 Research Paradigm

According to Rehman and Alharthi (2016), the research paradigm concerns the way in which the beliefs and reality of the theoretical framework of concepts are philosophically understood and technically articulated for the creation of one's own assumption and perception about elements such as ontology, epistemology, methodology and methods. (Rehman and Alharthi, 2016). Hence, through one of these listed concepts, the researcher will further examine the methodological processing and methods of achieving an analysed result to the dissertation topic being discussed.

3.1.1 Research Philosophy

Wilson, (2014) mentions the research philosophy is the linkage of the researcher's views on a specific topic based on the developed knowledge earned through the research done and hence can be used to answer the research question and objectives presented. This allows for clarification in the type of evidence required, the design outline of work and creation for adaptability and flexibility within the research. (Wilson, 2014)

The first philosophical element utilized is epistemology. Cited from Wilson, 2014, Bryman and Bell, 2007, refers to epistemology being the nature of knowledge where the social aspects of life is studied under the same predicaments, principles and standards as that of natural scientific study. It questions the verifiability of objectivity, subjectivity and causality. (Rehman and Alharthi, 2016). There are three approaches; Positivist, Interpretivism or Pragmatism. (Wilson, 2014).

Interpretivism entails a subjective perspective on social and natural science as both views cannot be emulated as various factors affect human perception on the understanding and processing of information which is unlike a set standard of interpretation. (Saunders, et. al, 2019). This form of research is inductive. This leads to open and complex interpretations (Wilson, 2014) which lacks reliability and trustworthiness of opinions. (Saunders, et. al, 2019).

Positivism would consider an objective view when research is detached from the humanitarian aspect. This follows an empirical scientific research style as it is constructed under a strict set of guidelines which are to be deductively followed with quantifiable sources. (Wilson, 2014). This research style is centralized with the general concepts formed where reliability and verifiability of information can be corresponded towards. (Wilson, 2014).

An agreement of both interpretivism and positivism can be said to be Pragmatism. This is aligned with both stances and is a paradigm for mixed methods of social and physical enquiry. It is used

conversely to generate the most impactful insights towards the different approaches and sections of an issue matter and question (Wilson, 2014) where it supports the action rationally and practicality in the research. (Saunders, et. al, 2019).

This study maintained a pragmatism approach in the exploration of the justification on why the adoption of Artificial Intelligence over Human Intelligence to firms is required in the Accounting and Finance Systems. This research methodology was the most feasible as it provided knowledgeable and factual findings of the research being conducted on a scientific stance as well as the social construct of criticism and individual's social context and approach towards AI. This method allowed for both factual and statistical findings of practical data to be founded as well as the humanitarian perception to also be interpreted. Other methods of approach would not have accurately provided convincing and valid findings on the topic under question.

In the further discussion of the research philosophy, Ontology embodies the nature of reality. Ontology questions the form of reality which exists which shapes the way in which the research is studied. (Rehman and Alharthi, 2016). Similarly, in terms of relation to the social linkage to concepts, the ontology considers the same subjective and objective views. Subjective relates the to the interpretivism stance where the social relation shall be perceived as a phenomenal position in understanding a situation where the opposing view exists with the positivism stance of the social world is an exterior factor of data linkage. (Wilson, 2014).

Subjectivity ontologies are based on the arts and humanities. It follows a nominalism form which follows the social actors such as persons' thoughts and attributions as the belief of multiple realities is more sensible under this form of construct. (Saunders, et. al, 2019). Conversely, objectivity is an ontological stance that stipulates the external realities are not based on social phenomena as these criteria cannot be reached or controlled. (Wilson, 2014). It proclaims that everyone should have the same sense of universalism reality and conceptualization of a research topic as it is based on theoretical understandings. (Collis, 2013).

The subjective writing style chosen provides literature which has been based off individual's beliefs and attitudes to reality which has been constructively studied which motivates one's response in a situation which can be controversial to others based on a differential perspicuity. The reasoning behind the agreement or disagreement discussed within the research topic chosen may have had various views from different authors pertaining to different aspects of research, however, the synopsis of the conglomeration of reasoning, all followed a similar linkage structure and

conclusion. The aim of the dissertation was to provide a rigorous reality of the research which can be seen to be accomplished using this form of method as it provided the most applicable reasoning behind the ontological research. Objectivity may have struggled to depict the reality of the situation based on various organizations and author's opinions as such would not have been taken into consideration but rather only what is scientifically notable.

3.1.2 Research Approach

As the second step of the paradigm, there are two forms which are inductive and deductive. (Saunders, et. al, 2019). An inductive research is defined as 'a theory-building process which starts with observations of specific instances, for the phenomenon under investigation'. This type of research is often associated with the qualitative type of research. (Saunders, et. al, 2019). On the contrary, deductive research embodies 'begins with and applies a well-known theory'. This form of research uses the application and understanding of a previously existing theory to generate a similar conceptualization called a hypothesis (Wilson, 2014) and uses a quantitative research method. (Saunders, et. al, 2019).

An inductive emphasize was seen to be carried out within this project as it allowed for the most accurate results and principals from various founders and authors who have had prior inductive knowledge about the research topic. This allowed for qualitative data to be used in the understanding of topics and allowed for validity of information being interpreted. (Saunders, et. al, 2019). Furthermore, this approach allowed for comparison between various authors where an inductive synopsis was formulated based on opinionated findings. Deductive research seemed unfeasible as theories and hypothesis would have required further development and testing which was not required. (Streefkerk, 2023). The following research strategy provides an evidential structure to the form of research approach undertaken in the dissertation and mentioned above.

3.1.3 Research Strategy

In the further study, the strategy of this research was used to introduce the main components of the project which categorizes the focus, perspective, the design and how the methodology structure would be implemented. (Malhotra, 2017). The three critical researching strategies which are Qualitative, Quantitative and Mix Methods approaches will now be discussed.

Qualitative data is not examined or measured in terms of quantity or frequency. It is focused on the social aspect of reality and the situational constraints. (Wilson, 2014). Quantitative would describe the emphasized work which involves measurement and analysis of factually produced statistics and variables. The usage of numerical evidence supports this form of approach. George, (2023) defines Mix Methods to simply be the combination of both elements of quantitative research and qualitative research for the purpose of answering the research question in a better framework. (George, 2023).

The researcher used a Mixed Method research strategy to formulate the work discussed as this view presented a pragmatic perspective of data collection methods such as journals, numerical findings, hypothesis previous discussed, and experimental researches. (Saunders, et. al, 2019). This method answers the similar perspective of findings formulated through previously published and existing theories which is drawn from a larger sample of the population which made the results more credible. (Wilson, 2014)

3.2 Research Design

The forth element of the Honeycomb Research Methodology is the research design. (Wilson, 2014). This involves the process of turning the research question into the research project by achieving the research objectives (Saunders, et. al, 2019) which are to reiterate briefly; the effects of AI implementation, the restructuring these effects will serve and how this implements will then encourage a stimuli of factors. It was also mentioned in Wilson (2014) by Blumberg (2005), that the time-base horizon should also considered in the planning of research. (Wilson, 2014).

The research design can be undertaken through explanatory, descriptive or casual means. Firstly, explanatory studies eluded to the similar view of an inductive approach which caters for further development of insights and hypotheses with the purpose of generating future research direction. Descriptive research is the opposite, with reiteration to deductive research where it can further be mentioned to describe existing or past phenomenon where an analysis is based off this view. The last type of design, casual research can be said to be solely with the focus of questioning why is the research the way it is; the cause and effect of a research topic. (Wilson, 2014).

The methodological approach taken in this study is explanatory as it is based off the exploration of providing accurate information on AI and the implemental causes and effects the technology has on human intelligence. It provided reasoning and investigated theories and phenomena. It can

be said the researcher used a descripto-explanatory study style for the purpose of researching as it also had some inclusion of previously tested hypothesis. (Saunders, et. al, 2019).

There are various strategies of research that links the philosophies with methods of collecting data. Examples of such which consist of quantitative, qualitative and a mix method approach are surveys, case studies, action research, ethnologies and systematic reviews. (Saunders, et. al, 2019). Systematic reviews were the most preferable form of providing scientific and accurate evidence. Results mentioned throughout the research was based off those structured literature reviews where incremental results from various authors continued to advance on the previous results. This created a synthesise case study which assisted in the summarization of hypotheses and conclusions derived towards and reduced the possibility of biasness through provided rational. (Lame, 2019).

Referring back to the time horizon, the two forms of approaches are cross-sectional and longitude. Cross-sectional refers to different context of information created over a specified timeframe at a single point in time. (Collis, 2013). A longitudinal design is a study which occurs considers a variable group of subjects over a lengthy timeframe. (Wilson, 2014). It is evidential that this form of research utilized longitudinal research as it explored data from the first introduction of AI in 1955 to the present time. Having a larger variable of events and outcomes allowed for a better conclusion to be created and hence made the project most verifiable. (Collis, 2013)

3.3 Data Collection

After the philosophy, approach, strategy, and design of research, the next element to be discussed is the ways in which data was collected and the sources used. Data collection is described as the systematic process of gathering observations and measurements for various purposes where first-hand knowledge is gained to solve the research problem. (Bhandari, 2023). Data exist in both primary and secondary data. Primary data is raw data gathered from direct individual research. This involves interviews, questionnaires and direct observation. Secondary data on the other hand is a range of previously published resources which has been reviewed and edited and can be founded in newspapers, academic journals, textbooks, Internet websites, abstracts, dictionaries, bibliographies and encyclopaedias. (Wilson, 2014). This research paper only utilized secondary data throughout as it was most applicable towards the study as it was the most feasible in terms of verifiability, reliability, timeliness, and efficiency of information accessibility towards answering the correlation of AI and Human Intelligence in the Accounting field.

Secondary data allowed for various advantages such as cost and time effectiveness as well as easy accessibility, however, in some instances, some data may be difficult to obtain and can be expensive. Even though this data is more viable, more reliable and less complex, the disadvantages to this form of data can be the simple irrelevance of data available due to the abundance and the quality may be compromised. However, secondary data is more adaptive, more flexible and more substantial which provides the reader with a better understanding. (Saunders, et. al, 2019).

This form of data chosen proved validity and reliability as most of the resources had the same conclusion. The existence of this information overtime has allowed for public scrutiny where, if incorrectly stated, such would have been founded. All data gathered within this research was also obtained from feasible authors and publishing platforms which represented a positive valuation of credibility. These sources of information derived from a conglomeration of books, journals, published websites and university studies such as Google Scholar, Research Gate, VLE Books and ARU Library and were used to obtain data where key words were used in conjunction to abstract analysis to test if the work found met the required criteria. The main data founded can be seen in the below table as it was used throughout the project; specifically, in Chapter 4.

Table 1: Key Sources Utilized

Resource Type	**Title**	**Source**
Journal	Artificial Intelligence and Accountants	(Akinadewo, 2021)
Case Study	AI & Data Analytics 2020	(Arrowsmith, 2020)
Research Centre	Big Data in Practice	(BARC, 2016)
Journal	Embracing the role of Artificial Intelligence in Accounting and Finance	(Gambhir and Bhattacharjee, 2021)
Journal	AI in Accounting and AMP	(Hasan, 2022)
Website Research	AI and the Future of Accountancy	(ICAEW, 2018)
Website Research	Impact of Artificial Intelligence on Civilization	(Kumari, 2013)
Article	The future of Blockchain in Accountancy	(Kunselman, 2022)
Article	The key definition of AI that explains its Importance	(Marr, 2022)
Website Research	AI Accounting	(Minaeva et al., 2024)

Website Research	AI in Accounting	(Morris, 2023)
Website Research	The Turning Test	(Muller, 2012)
Research Center	AI Worldwide	(Thormundsson, 2024)
Journal	Artificial Intelligence in Accounting and Finance	(Yi, 2023)
Website Research	10 Best AI Tools for Accounting and Finance in 2024	(York, 2024)

Source: Adapted from Researcher, 2024.

3.4 Data Analysis Plan

A Data Analysis Plan (DAP) as described Banks (2013), is putting thoughts into a structured plan of action. Questions are required to be analysed, tested and solved where the purpose of the plan of action is to test for research integrity and quality in order to reproduced results. (Banks, 2013). The researcher utilized an explanatory writing technique which involved qualitative research to gather the data utilized for the formation of findings and analyses to provide the reader with a comprehensive form of understanding. The conditional circumstances were proportionally met in terms of comparability of views and perspectives. Graphs, charts and tables were of limitations, however, through descriptive narrative, a measurement of the association of AI and Humans were developed. (Wilson, 2014). The influential characteristics of AI and the reasons of incorporation into the system as well as support from other firms was supplementary in the supportive reliance shown towards the objectives. Statistics assisted in the support of this view that AI will, and does affect Practitioner's job. Predictions and conclusions were precisely developed through the research conducted where in the researcher's view adequately supported the objectives.

3.5 Ethics

The ethics refers to the principals that is used to guide the design and the practices a researcher utilizes in the scientific gathering of data used in a research project. It maintains the integrity and dignity of the writer's work through the protection of another author's work which fosters an atmosphere of collaboration between science and society. (Bhandari, 2023).

The ethical concerns deal with the human aspect of the research where credibility must be shown for the usage of other works in the finalization of another's work. Such has been presented within this research as all data can be accessed as it has been publically published. In this research,

anonymity was not relevant as secondary data was maintained throughout. Furthermore, information cited was presented in a manner where it would not condemn reputational damage to an author. Information was presented in accordance to the author's views with simple agreement or disagreement. With the major concern of plagiarism, all data was used as a form of building knowledge and interpretation where such was related based on information found in a perspective unique to the researcher. All data used has been reflected in form of In-Text Citations as well as shown in the Reference List accordingly. (Bhandari, 2023).

3.6 Limitations

Research Limitations are based on the evidential nature that all research will have restrictions. The following shortcomings has been seen to be notable throughout the dissertation. The research topic chosen can be said to be relevantly new where the technology is only now being involved into the world of accounting where supportive data was somewhat complex in some research areas. Data which directly supported the claims were not seen to be found where statistical data was highly limited. The lack of knowledgeable research and experiments in this topic area compromised the research and scope of works where interpretation was integral. In addition to such, charts and graph were limited and therefore the closest relation was utilized. Data analysis could not entirely be correct as it was based on the access to findings and material covered, therefore, there are limitations provided towards such to a small variation. Further sampling would have been beneficial to assist in alleviating such possibility. Work was presented to the best accessibility and ability based on the researcher's experience in the field of conducting research and producing an academic paper of this nature. (Dudovskiy, 2024).

3.7 Summary of Key Choices

The Honeycomb method was used to describe the research methodology undertaken. The researcher took a pragmatic approach in the philosophy approach where it was followed with the usage of a subjective writing style. An inductive emphasis approach was then taken to follow a qualitative research strategy formatting. The project undergone a longitudinal descriptive design with the thorough usage of secondary data. The research plan followed this approach where the ethical perception was abided by and the limitations were briefly discussed.

Chapter 4

4.0 Introduction

Chapter 4 explores the findings and analysis of the project conducted through the various forms of secondary data which was utilized within the study. These forms of data were previously studied case studies, scholarly journals and articles, websites and books which were all retrieved from the online databased. The preliminary aim for this research creates a consensus of the importance of the introduction of Artificial Intelligence into the Accounting and Finance field. The conglomeration of the mentioned resources has been founded to guide the following analysis and answer the objective and aim of this project. To answer the objectives, the following sections highlights the findings established in terms of the analysis of the effects, restructuring and adoption in terms of; roles, responsibilities, operations and processing; and the correlation between human involvement and Artificial Intelligence and how this form of robotics would serve an effect on the Accounting and Finance Career.

4.1 Analysis of the Implemental Effects Artificial Intelligence would pose against traditional Accounting and Finance Personnel

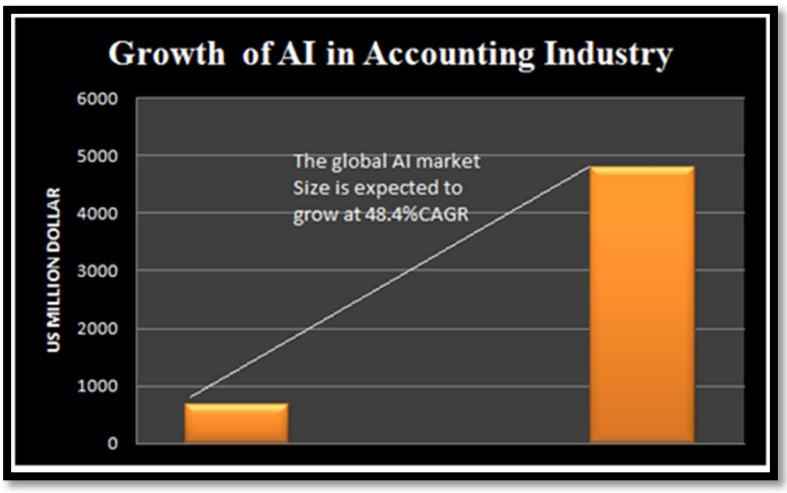
4.1.1 Findings

Findings related to the above mentioned objective has been gathered from the usage of sources such as Hasan (2022), Muller (2012), Kumari (2013), Taghizadeh (2013), Akinadewo (2021), Kunselman (2022), ICAEW (2018) and Yi (2023). Authors like Taghizadeh (2013) claims major technologies include Genetic Algorithm (GA), Neural Network (NN), Natural Language Processing (NLP), Expert Systems (ES), Fuzzy Logic (FL), Robots (RB), and Intelligent Agents (IA). Such was also stated that these Expert Systems create a stimulation of programming similar to that of an expert in a diverse field of knowledge and perception of one which is rational and specialized in the observation of recognizing patterns similarly to that of humans. In the view of Odoh (2018), Expert Systems like Artificial Intelligence programs which attains a certain standard of expertise that holds the capability of replacing human speciality in decision making. (Akinadewo, 2021). Yi (2023) moves in accordance with Akinadewo views on Artificial Intelligence becoming a dominant technology with specific focus to the Accounting and Finance Industry. Firms who have utilized this form of technology are Facebook, Google, Microsoft and much more. (Yi, 2023). Suleiman et al. (2020) has also shared similar views where Artificial

Intelligence changes businesses future through intelligent cloud computing. (Suleiman, 2020). A further global study conducted by Sage (2020), founded that 50% of accountants surveyed highlighted the main usage of Artificial Intelligence was based on time constraints. Further markets analysis in 2020 shows that the growth of Artificial Intelligence is was expected to be a value of USD 666 million in 2019 to USD 4,791 million by 2024. at a 48.4% Compound Annual Growth Rate. (ICAEW, 2018). See below Figure 3 of growth graph.

Kumari (2013) and Stagliano and Tanzola (2020) argued that these thinking machines created by humans are prone to the similar errors commonly found in Human Intelligence operations. The Classical Theory of Artificial Intelligence (CTAI) studied by Muller (2012) questions if machines can think which suggests that it is difficult for Artificial Intelligence to entirely replace human intelligence. Controversially, Zohuri and Rahmani (2020) proclaims that the further development of Artificial Intelligence is however providing humans, the innovators, a serious battle due to the advancement these machines holds on and its ability to currently replicate human characteristics. Statistics presents the relation between Artificial Testing and Accountant Approach to Accounting Functions (R) which is reflected as shown in Table 2 below in the form of a regression analysis. Table 3 of the Analysis of Variance (ANOVA) further supports the application of this model towards the analysis being conducted. (Akinadewo, 2021).

Figure 3: Growth of AI in Accounting Industry.



Source: Adapted from ICAEW, 2018.

Table 2: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.292[a]	.085	.053	.59850

a. Predictor (Constant): ES, NN, RB, FL, GA, NLP, IA

Source: Akinadewo, 2021.

Table 3: Coefficient

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.009	.631		3.183	.002
	ES	.144	.063	.138	1.806	.072
	NN	.099	.076	.101	1.306	.193
	RB	.009	.057	.012	.165	.869
	FL	.031	.067	.034	.461	.646
	GA	.075	.066	.084	1.123	.263
	NLP	.133	.074	.133	1.800	.073
	IA	.104	.072	.104	1.440	.152

a. **Dependent Variable: Accountants' Approach to Accounting Functions**

Source: Akinadewo, 2021.

4.1.2 Discussion

Through the findings, it can be noted that Artificial Intelligence exists in a multitude of programming and systems. Each technological advancement has its own rules and functionality which governs the operational properties these system produce. The main objective these systems holds is for the ease of human operations in any field as the machines is formulated with the capabilities to consistently operate through regulated inputted data and programming which tends to maintain a form of order which limits errors. (Akinadewo, 2021). Through solely operating on data inputted these thinking machines is physically unable to produce any other results that what would be intended due to limited cognitive function these machines entail. The limitation of human error or varying perception is hence limited. (Yi, 2023). According to Thormundsson (2024), the market for this technology is large where in 2023 it amounts to approximately 200 billion U.S. dollars where a further growth is expected to expand to over 1.8 trillion U.S. dollars by 2030.

(Thormundsson, 2024). It is evident in the Accounting sector that Artificial Intelligence is highly present as it is specifically seen in the auditing sector for the management of voluminous data and the distinction of anomalies present in financial statements. A large number of accountancy firms have been charges with the malpractice of standards and law in the auditing process where the alleviation to this has been suggested the usage of Artificial Intelligence. (ICAEW, 2018).

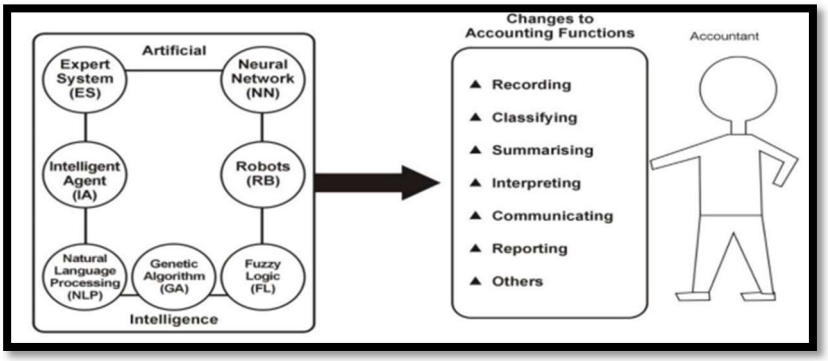
Further analysis suggest that Artificial Intelligence will achieve human intelligence by 2029 where it is being estimated that over 16% job will be substituted by robots. In the opposing view presented by Kumari (2013), Stagliano and Tanzola (2020), where the machines are prone to error can be altered by the view of robotics like humans are prone to error. However, with the supervision of these technologies and the further advancements, these mechanisms are capable of providing sufficient work where mistakes are corrected by the relevant accounting personnel to avoid such malfunction in the future operation. Contrary to such, through the analysis seen on Table 2, it is shown that there is no significant positive relationship existing between Accounting functionality verses Artificial Intelligence. The Standard Error of Estimate which has been reflected to be 0.59850. The R signifies the patterns observed and the calculated values of variables. The Coefficient; Table 3; reflects the degree by which Artificial Intelligence has a positive or negative response toward the Accountants' Approach to Accounting Functions. It is shown statistically that $P = .002 < .05$, which indicates that Artificial Intelligence has a positive influence on Humans. (Akinadewo, 2021).

4.1.3 Interpretation

It is evident from the findings and discussion presented, the systematically knowledge of engineered technology was created for the simple means of solving problems human intelligence may encounter. Through all the research permitting to Artificial Intelligence and the relation this form of technology has on Humans, it can be stated that there will be limited effects posed against humans in terms of job replacement, roles and responsibilities. This technology has been best advised to act as a form of inclusive automotive skillset which makes Practitioners job simplified, more efficient and most trustworthy. As mentioned the technology analysis, inputs and summarizes accounting information into the required categories to which data is classified under. The general time of data entry is significantly reduced with the added bonus of alleviations of human error which can be experienced in processing of lengthy data. Those are some of the things

automation software does best as it can be described to put tedious tasks on autopilot and improve their financial operations. (York, 2024). Furthermore, the view of Artificial Intelligence overruling Humans seize to exist with relation to the Classical Theory of Artificial Intelligence studied by Muller (2012), it can be stated that these thinking machines are not intended to completely replace personnel but to assist practitioners. Hence, this technology would be required to be frequently supervised by Accounting Practitioners to ensure information being produced, matches the standards and regulations required where in the instance technological inaccuracy occurs, such is immediately resolved. (ICAEW, 2018). Regardless of the continued advancement to the technology and the realization that computerization is performing task never imaginable, in the near future, human beings and technological machines seem to merge into a conglomerated whole simultaneously working along each other and becoming more capable and powerful. Concluding the interpretation, the variable calculation obtained suggests that artificial intelligence does indeed affect accountants' approach to accounting functions by 29.2% which is positive influential and is in agreement with the position of Odoh et al. (2018). (Akinadeow, 2021).

Figure 4: Conceptual Framework of Changes to Accounting Functions due to Artificial Intelligence.



Source: Adapted from Akinadewo, 2021.

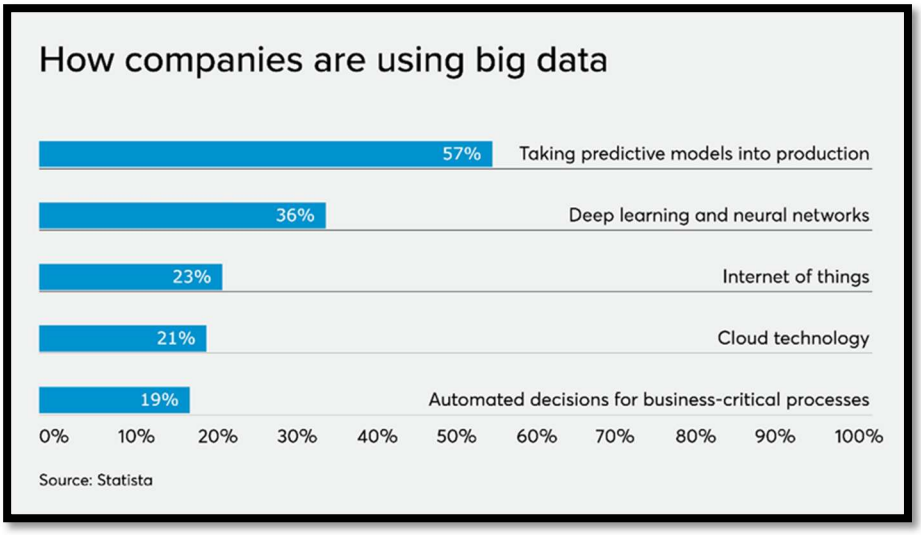
4.2 Analysis of the Restructuring and Adoption of modernized technology into the existing Accounting and Finance Personnel job career and operations

4.2.1 Findings

In relation to the above mentioned concerning if and how the adoption of AI into the field would affect practitioners, it is evident that yes the inclusion of such technology would. Hence, the

following findings from similar authors mentioned above have been founded with the specific focus on how these personnel would be required to reconstruct the current roles and responsibilities. As mentioned previously, AI implementation act as a gateway of opportunities on the role of accounting practitioners which results in new responsibilities to be developed and a possible retraining of one's skillset in terms of advancing according to the AI technology. (ICAEW, 2018). ICAEW (2018) also mentions that technical skills are required for machine learning where a deep understanding of the business context and the surrounding data must be clearly. (ICAEW, 2018). Gambhir and Bhattacharjee (2021) mentions upgrading one's skillset for the adaption of this new modernized form of technology should be a highly desirable trait. (Gambhir and Bhattacharjee, 2021). According to a report presented by Boston Consulting Group, "25% of such jobs may be replaced by automated systems by 2025." (Peccarelli, 2016). Such was proven from the findings founded that firms such as Deloitte and KPMG have eliminated human performance of bookkeeping with the involvement of AI to replace this task. (Faggella, 2020). Nilsson (1984), comments that the development of this technology provides reasoning, judgement, and perception restricted to human proficiency. (Nilsson, 1984). Marr (2022), states that AI acts as thinking machines for humans as it holds the capabilities to replicate, analyse and produce responses similar to what would be performed by humans in the working environment. (Marr, 2022). Morris (2023), mentions a similar view that through 'data science,' human workflows can be fed into smart data to machines. With a further finding presented by Minaeva (2024), approximately 11% of the surveyed accounting firms are presently using Artificial Intelligence extensively where it was founded that a notable 51% of the firms anticipate to have AI incorporated within the next months. All the Big 4 accounting firms namely; Deloitte, PwC, KPMG and Ernst & Young are continuously investing in AI-powered tools and solutions in order to provide their clients with better, insightful and regulatory financial and accounting services. (Morris, 2023). Minaeva also gives further reference to the fact that AI has been changing the roles of accountants through simplifying traditional accounting practices and enabling practitioners with more time for more important tasks. (Minaeva, et al., 2024). The below shown graph chat shown the usage of AI in a few companies in the United States such as LBMC, Baker Tilly and HBK CPAs and Consultants. The author presents that the more effort put into software development of a firm the better success rate of the company for similar reasons previously mentioned above. (Arrowsmith, 2020).

Figure 5: How Companies are using Big Data (AI).



Source: Adapted from Arrowsmith, (2020).

4.2.2 Discussion

It can collectively be discussed that AI would change or lessen many roles performed by Accountants and Financial Personnel as the technology has been designed to replace systematic forms of data entry which can be seen to be viewed by various authors as being tedious and time consuming. Hence, the inclusion of AI into careers will create a restructuring of the distribution of work in this field as the basis accounting practices such as bookkeeping is now being performed by AI. Due to the technology being designed based on book-to-rule, this system has a subconscious way of eliminating material misstatements in the financial information created. (Faggella, 2020). Such misstatements can be found in human intelligent systems where AI objective is to alleviate against such. As stated previously, AI intent is to act as an assistant tool beneficial towards the practitioners but does not have the current attempt of entirely overtaking the field. Similarly, it can be stated that the requirements for Accounting Practitioners does not fall short as they would still be of requirement in the performance rendered to other duties and responsibilities. Providing that these AI tool has sufficient access to data models and philosophies on Accounting and Finance, the technology has the ability to overview and analyse all possibilities of data presented towards it. Hence, regulatory updating of these systems are mandatory in order to maintain the best functionality. This would also mean that human involvement would often be required for the

purposes of supervising these machines and acknowledging points of decreased compatibility and performance. (Minaeva, et al., 2024).

Systems such as those mentioned above ES, NN, RB, FL, GA, NLP and IA are all forms of AI which assists accountants at varying levels where the adoption of the way in which these technologies interact and analyse financial data should be of understanding to modern day accountants and financial personnel. (Hasan, 2022). Accountants are required to combine a high level of numeracy with strong business awareness of the newly implemented systems. New roles will place emphasise on technical accounting expertise and the comparison of human judgement to conclude cases where AI may not yet have the necessary capabilities of solving. However, AI will support the theoretical understanding of data. Moreover, accountants will now be required to be involved in training, testing models and auditing algorithms as the purpose is to assist in the theoretical outline of the analysis. This can be categorized as an evolution update to the previously existing framework for the career where such adaption would now be required to be reflected accordingly to prepare upcoming accountants for the technological adjustments. Complication to current practitioners with this adaption can be seen as a difficult change as this would entail an entirely new forum of superficial knowledge and understanding to many. (Minaeva, et al., 2024). In this same approach of a new adaption to knowledge, the critical thinking of accountants would be required to be initiated as they would be required to think and act accordingly in order to make the most of machine learning tools. It can also be noted from the graph Arrowsmith (2020) presents based on the research conducted, there is quite a rationally suffice level of AI implementation into the firms. Even though lesser results were shown for Cloud Technology and Critical Thinking Processes, the level of implementation considering the date of publication may have also increased.

4.2.3 Interpretation

Through the findings and discussion above, AI has been interpreted to be significantly advantageous to the Accounting and Finance career. With specific focus on the implemental effects this technology would place on the roles and responsibilities, whether it be automating administrative tasks, electronically fraud detection, analyse of complex data, or extraction of values from customer information, AI has been founded to match these criteria precisely. AI accounting implications comes with the perks freeing up time for humans in time-consuming and repetitive jobs. Large accounting firms has used the technology for the replacement of AI-enabled

document-reviewer, the NLP parser, as well as call enters. (Morris, 2023). All these platforms shorten the processing process but still requires the review by third parties.

In terms of the retraining, in relation to the AI platforms used, further educational advancement would be required to understand the complexities of the systems. Traditional regulatory work must now comprise of a strategic thinking mind-set which is built through cognitive analyse and interpretation of data that AI accounting software parses. Moreover, an expertise can be developed by employees. (Morris, 2023). As traditional practitioners evolve into the modernized world of technology, such adaption may be difficult where many firms may feel the need to not implement AI due to the difficult nature of the technology. However, many systems are simple to understand, where practitioners may feel compel to simply match AI results with expectations provided by human intervention. However, the advantage run large where such can be taken into consideration. With consideration to the graph presented, it can be notable the most effective and active use of AI has been founded in Production models and Deep Learning and Neural Networks. A possible reasoning can be due to the advance upgrades to technology in these specific areas of implementation as compared to the other lower implemental forums. With sceptics still high on the positive effects from AI in the cognitive functioning of human replicated judgement may have also played an integral part in the lower implementations in these technologies. Evidential, AI can be tested through production easier than judgement or critical thinking to the supervisory board. (Arrowsmith, 2020).

4.3 Analysis of how the correlation of the involvement of Artificial Intelligence and Human Intelligence would be inflicted within the Accounting and Finance field

Efficiency, Effectiveness, Control, Accuracy and Economic Standard

4.3.1 Findings

The concluding finding relates to how the above-mentioned restructuring of AI into the Accounting and Finance field can be beneficial and appropriate. A 2019 study shows that by Ernst & Young founded that 84% of United States CEO's and business leaders have recognized AI as an essential driver and tool required for their companies' further success. (Morris, 2023). Described by Gambhir and Bhattacharjee (2021), gaining controlled usage and application of this tool should be the mind-set when including AI into one's career as practitioners would be in inclined into

making their job more efficient and effective where AI can be used to their advancement within their job specification. (Gambhir and Bhattacharjee, 2021).

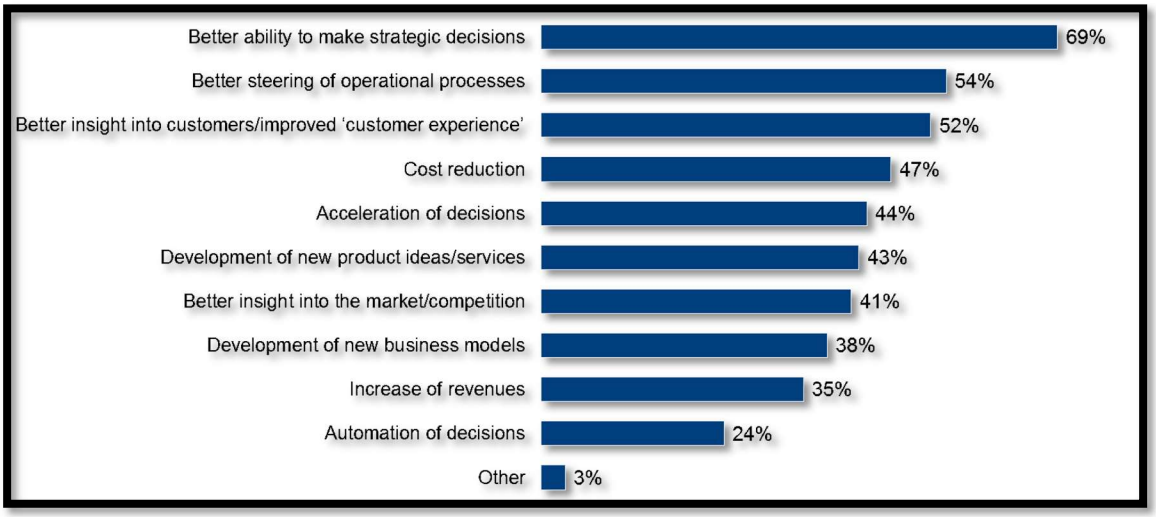
York (2024), states that Accounting firms have been utilizing data entry software for the past few years as it has been seen to reduce human error and improve profitability. Artificial Intelligent platforms used in Accounting and Finance Field are namely; ClickUp, Zeni, Vic.ai, Bill, Doyct, Indy, Gridlex, Truewind, Booke and Blue Dot. (York, 2024). Optical character recognition, intelligent trading systems and intelligent accounting information systems are widely employed in the practice. (Yi, 2023). It is through these AI algorithms that Minaeva, (2024) describes there to be a higher level of accuracy of these thinking machines to detect patterns, anomalies and error as well as gain valuable insights, identify trends, predict outcomes, and support decision-making processes more precisely than humans. (Minaeva, et al., 2024). Kumari et al. (2013) also examined intelligent computing relating to cloud computing where the understanding of natural language and the fulfilment of cloud computing in relation to human involvement is correlated. (Kumari, 2013). Hasan (2022) mentioned an author's view; cited; Mohammad et al. (2020), who identifies that by the implementation of AI into the industry, it reduced the accounting costs and adds value to the accounting industry as it moves from a 'monotonous tasks' to data-driven and 'analytics-based decision.' (Hasan, 2022). The process of Artificial Intelligent Systems and financial statement may include, to name a few, the processing of invoices, data entries, assessing standards, segmental arrangement of data, developing worksheets and creating standard contracts.

Hasan (2022) mentions; Rezaee et al. (2002) defined Continuous Auditing as the methodical collection of electronic financial evidence on the basis of fair presentation of on real-time accounting information where the Decision Support System (DSS) can further assist in this financial data production through the computerized system of interactive, adaptable, and versatile decision making for resolution and analysis. Robotic Process Automation (RPA) is an intelligence automation which follows pre-programmed rules and inputted data to formulate a series of processing and tasks required to replicate that of human intelligence. (Hasan, 2022). Deloitte, (2018) concludes that machine learning is a branch of scientific technology to which human have the capabilities to learning from such. (Hasan, 2022).

This integration of advanced AI functionalities means that it becomes a standard toolkit for accessibility and reduces the need for additional manpower for the mundane tasks. It represents a seamless blend of AI and traditional software alternatively enhancing productivity and the

decision-making process without disruption of familiar workflows. (Minaeva, et al., 2024). The Business Application Research Centre (2016) has formulated the bar graph below which illustrates the advantages and benefits that Big Data brings to a source of 550 firms globally. It categorizes the initiatives or strategies to integrate, store, and analyse data both internally and externally. (BARC, 2016).

Figure 6: Benefits Achieved from Big Data Initiatives (AI).



Source: Adapted from BARC GmbH Research Centre, (2016).

4.3.2 Discussion

As this career uses systematic repeated actions for the construction of consistent results, it is only evident the implementation of AI to these firms would be of great success and applicability. Due to the nature of these systems comprising of a programmed input, the constant repeated tasks of analysis similar data into grouped cohesion can be mimicked by a system which has the capabilities of percept the variances and categorize new data accordingly to the regulatory and programmed formatting expected. Such as has been evident through the Ernst and Young view that 84% of US larger business firms has established the need for the technology. Relating to Grambhir and Bhattacharjee (2021), having control over the technology is key in the ways in which it will used in the firms in the best suited advancements most impactful towards practitioners. (Grambhir and Bhattacharjee, 2021). Enhancement to the roles and responsibilities derive from the upper hand

the technology holds in everlasting storage of data which does not have the capabilities like humans whom are susceptible to forgetting. (Jaslove, 2017).

In the same context, the design of these machines reduced human errors as there is only one form of stimuli to be followed. The possibility runs small in the event that these machines malfunction. Detection of machines malfunction can be notable, however, human errors may go unnoticed. Accountants can use AI to ensure greater accuracy in financial statements and the minimization of compliance risks and adherence to accounting standards. (Minaeva, 2024). Readily available AI technology has been published for the usage by firms where the simple implication of formatting the basis unique to the firms has been provided. (York, 2024). With the pre-programmed technology, the ability to constructively produce information at any given time or day, the accessibility to this form of information obtaining is unmatched when it is compared to humans. (Minaeva, 2024).

Not only does AI improve productivity, but there is a major cost reduction as mentioned by Mohammad (2020). Investment in AI may be costly at the initial stage, however, the overall costing of hiring persons to perform these tasks may be costlier in the long-run. Therefore, providing the economic sustainability the software grants. AI-based algorithms have the ability to detect suspicious patterns and anomalies in financial data which aids towards the highlighting in fraud detection and risk mitigation. Historical data, market trends, and economic indicators can also be analysed through AI technologies where forecasts of various business and accounting approaches can be generated. AI aims to optimize business processes and support growth initiatives in firms. (Minaeva, 2024). The graph agrees to the aforementioned claims on the usefulness and the significant impacts AI has on firms globally. It is increasingly prevalent from the assumption of the figures presented. This is empirical research which answers the research objective being conducted where it questions the advantages of AI to Accounting and Finance Personnel. (BARC, 2016).

4.3.3 Interpretation

The effects of AI to firms is known to be quite advantageous as it serves individuals assistance which in return is beneficial to firms and receivers in terms of quality information. These professionals are becoming armed with the knowledge they would have obtained during their course of study in this field where it is directly accessible at their fingertips. The strategic thinking

of the methods of AI operations introduces persons with data skills and an understanding of how to interpret difficult data where critical decision-making can occur through better understanding of data. (Morris, 2023). With the strategic system of AI, these systems have been seen to highlight errors in information submitted which when reviewed by third parties such as accountants, further assumptions can be made towards misrepresentation of information or potentially fraudulent activities. Reducing the risk of financial misreporting allows for better control and integrity of information. This reduces cost both in the processing stages as well as the outcome of information presented where in the instance, legal action can be brought to accountants for incorrect representation of financial data, limitations are set prior to avoid such circumstances.

Whilst correctly and accurately representing the economic and financial information of a company, further findings can be allotted through the usage of AI pattern recognition in terms of determining the economic standard and potential a firm can hold. AI represents and publishes the information as presented and is unable to make the cognitive judgement to misrepresent based on human biasedness. (Minaeva, et. al, 2024). Humans may lack the ability to detect or combine related data to formulate a forecasted position of a particular area of business standard where, if AI has not been limited to information, previous linkages can be systematically applied to formulate similar judgement. (Yi, 2023). The higher the accuracy and ability to represent the economic reality of a company, enhances the level of service provided to clients and stakeholders.

Handling raw data in spreadsheets for example is time consuming once done manually, however, AI implementation does this automatically in a short period of a few minutes to immediate. (York, 2024). As cited from Kumari et al. (2013), intelligent cloud computing created from software machines programming has been proven to improve efficiency and to make decisions autonomously and in real-time based both precisely and effectively to represent similar views that humans would have also created. (Kumari, 2013). This increased the productivity optimization of a firm significantly. Various optimization algorithms such as; genetic algorithms and optimization algorithms are used to solve such inefficiencies through technologies such as fuzzy logic and neural networks. (Yi, 2023). Drawing analysis from the graph, approximately ¾ of the 550 firms utilizes Big Data in the most prevalent; Strategic Decision. This can be drawn out from the analysis of financial data that the technology produces. Further implications were heavily placed on operational processes, customer experience and cost reductions. This shows a high divergence in expectations and also the benefits achieved. Due to advanced and predictive analytics which AI

presents in most of the departments of application, this played an increasingly important role in unlocking the value in data and hence the use of AI. Firms are given better insights into action required to make the firm more economically stable and factors which may play an integral role in the growth of the company. Comparatively, it has been seen through this representation firms utilize AI in the decision making process as well and not only the production units as previously discussed in Arrowsmith analysis. The graph supports the research being conducted that AI is advantageous to firms where the use in other organization answers this research objective and facilitates for the discussion held above. Hence, justifying the reasoning of research. Firms may still be reluctant to fully commit to AI more solidity as there can be challenges in data privacy, security, and a shortage of Big Data expertise when dealing with Big Data. (BARC, 2020).

4.4 Findings Briefing

Chapter four consist of the findings and analysis of the dissertation through the usage of data. AI exists in an abundance of forms relevant to Accounting and Finance (A&F) Personnel where the technology does pose implemental effects on such. A&F Personnel required restructuring in terms of accommodating the new technology into the existing systems with the relevant modifications. Concluding, Statistical data proved the last objective of the positive correlation AI has on A&F.

Chapter 5

5.0 Introduction

The conclusion presents a synopsis of the information gathered through the entire research dissertation. The main purpose of the chapter presents findings on the research questions and objectives of this project on the concluding aspects obtained after the research was conducted. To reiterate this project explores how does the implementation of Artificial Intelligence in firms impacts the roles of practitioners in the Accounting and Finance System. The pragmatic epistemology used through inductive and qualitative research guided the results on the effects of AI implementation to practitioners, how the restructuring effect of A&F Practitioners will serve and how this implement will then encourage effectiveness, control, accuracy and better economic standards in the A&F field. The explanatory method of writing through the observation of the varying sources of academic research such as journals, articles, website research and books provided the evidential support towards the conclusions discussed below.

5.1 Conclusion on the Implemental Effects Artificial Intelligence would pose against traditional Accounting and Finance Personnel

The initial research on this finding began in chapter two where the summary of discussion presents that thinking machines are designed to replicate human processing. Hence, creating automotive robotics to produce actions normally produced through human intelligence such as speech recognition, visual perception and various decision making processes. With such automation, it seemed feasibility to create such technology to assist with tasks related to systematic repentances and processes to ease the work of manual processing.

Chapter four further explores the findings based on the academic research database where various authors presented the wide availability of AI to A&F Personnel for the adoption into firms. Akinadewo (2021) summarized the performance expected by these systems and the ways in which it will interact with the human intelligence forum with varying rules and functionality. (Akinadewo, 2021). It was also mentioned by Muller (2012) that this technology has been formulated to digitally assist practitioners but not directly replace their job position. (Muller, 2012). It was argued that the thinking machine will fail because it is inevitable that such occurrence of it not failing to occur, however, this is one of the major key points to be taken when considering AI and A&F. (Kumari, 2013). Practitioner's would be affected yes, but to their

advantage where supervision of technology will not become a proposed additional aspect of the career. Tedious tasks are eliminated whilst accounting personnel spends more time in more structured work. Akinadewo (2021) also proved the research through the statistical data of positive impact. (Akinadewo, 2021). Further discussion will be explained in terms of the restructuring and adaption of AI.

5.2 Conclusion on the Restructuring and Adoption of modernized technology into the existing Accounting and Finance Personnel job career and operations

In relation to the above mentioned, traditional accounting has been notable manual and tedious in nature which prolonged the roles and responsibilities of accountants. ICAEW (2018), mentions that AI has the capabilities to provide practitioners with a gateway of opportunities which will involve the retraining of one's skillset. (ICAEW, 2018). However, the creation of artificial intelligence has brought about adoption of this technology to replace the mundane tasks which will increase by 25% in 2025. (Peccarelli, 2016). A conglomeration between AI and Humans are expected to significantly rise within the upcoming years. (Hasan, 2022). As discussed, depending on the type of AI technology being implemented, these practitioners would be required to learn expertise in the technological knowledge field of advancement as the overseeing of such would be required by accountants to ensure the machines are presently data as accurately as possible. Accountants would have a supervisory role over these systems where regulatory system checks would be essential to accommodate for quality financial work. Hence, the effectiveness of AI on A&F Personnel is present where restricting at varying undefined levels would be required. As mentioned by Morris (2023), all the Big 4 accounting firms has significantly adopted AI into the system as it provides more efficiency with the firm and better results. (Morris, 2023). However, it is still evident that many firms are yet sceptical about AI implementation due to the lack of understanding of the technology. (Arrowsmith, 2020)

5.3 Conclusion on how the correlation of the involvement of Artificial Intelligence and Human Involvement would be inflicted within the affect Accounting and Financial field

The final objective relates to the possibility that through the above mentioned factors, A&F practitioners would experience better control, efficiency, effectiveness and economic reality of a firm through the implementation of AI. All author's work founded a positive response towards the

objective where it was all in agreement with the research. The study by Ernst and Young provided a statistical fact of the conclusion being presented with AI being a driver tool for a company's success. (Morris, 2023). Such that it is evident through the graph presented as well as the literature discussion held that many authors' distinguishes that the reliability of this system can be trusted to better formulate the current performance of how humans interact and operate financial information in the processing and analytical stages. RPA software reduces the errors and limitations faced with human intelligence and replaces it with AI advancements. (Hasan, 2022). Considering the programming used in AI, this has allocated reasons why it produces more reliable information as data can only be understood through this means, hence, making it inevitable to make errors. (Minaeva, 2024). The ways in which these machines also operate makes efficiency and effectiveness a simple results of actions rather than a tasks when being analysed through AI. As mentioned by Mohammed (2020), the system has also been founded to reduce cost of human power as it is replaced with other electronic alternatives. (Hasan, 2020). Hence, it is of a concluding analysis that AI is positively impactful to firms globally and not only limited to Accounting and Finance where further exploration of this technology is slowly becoming adapted by many firms worldwide. By minimization of human prone errors, companies can the capability to reach for greater accuracy, control, efficiency and effectiveness in their financial reporting, compliance, and decision-making processes.

5.4 Recommendations

Through the research undergone and the newly obtained knowledge, it can be recommended that the researcher also provides the similar judgement towards the implementation of Artificial Intelligence into firms; specifically Accounting and Finance firms. The following recommendations are based on the analysis of the heavy research undergone that the end results samples the positive effects AI grants towards the career:

1. It is recommended to implement AI into firms as the system has the ability to perform the basic levels of accounting tasks which are the most systematic and straight-forward but also the most time-consuming.
2. Implementation is essential as the technology increases the speed of information processing faster than that of human intelligence where mistakes and unrecognized data can be avoided due to the systematic and in-depth analysis of data registry found in AI

technologies. (Google Cloud Terms, 2023). This makes the financial data produced by the machines obtain a higher financial reputation when produced. (Marr, 2022).

3. The AI system is being risk-proof to some extent as it is more viable for faster, reliable and cost effective ways of operations as it works by the rule book only and pre-programmed control which limits what the system does to information inputted. (Schmelzer, 2023). Hence, information produced from these thinking machines can only be of validity and compliance according to the various accounting and financial frameworks utilized by firms. (ICAEW, 2018).
4. Due to AI technically being digital secretaries, Practitioners workload become more efficient and trustworthy where more time-conscious and integral tasks which require direct Human Intelligence can be undertaken more effectively due to decreased tasks outstanding. (Jaslove, 2017). Alternatively, this also lowers the tedious tasks of practitioners as it may involve a repeated approach in the daily operations.
5. Further skills are developed through technological implementation as practitioners are forced to learning new ways of operations to make their job more efficient and obtain a better sense of awareness of the systematic changes. (Gambhir and Bhattacharjee, 2021). AI builds one critical thinking skills on machines technology. (Minaeva, 2024).
6. It is recommended that new companies gradually implement these technological advancements at a slow pace due to it being rationally new to many where slow adaption is required to understand the system strengths, weaknesses and limitations. (ICAEW, 2018). It has been proven advantageous to many and would be highly useful in terms of A&F implications and operations.

In summary, the writer claims that AI should be adopted in the A&F Firms due to the multitude of advantages the system grants at all level for all users involved.

5.5 Limitations and Future Research

The limitations of the research can be granted towards the solely and wholly usage of only secondary data which allowed for research to be driven from the usage of information which has been publically posted on a platform which does not accurately grant credibility. Using research that is based off a variation of authors perspectives where even those theories and phenomenon could not have been directly capable of being tested for verifiability and reliability. Additionally,

due to the research being rationally new, there were only data related to past research where limited research on new findings were presented.

However, for future research, the usage of primary data where surveys, interviews and questionnaires would have been used would have allowed for a more precise method of testing the existing literature obtained and matching the validity of secondary data to primary information. This way the evolution of changes based on the varying in sampling, perspectives and other physical constraints.

Further downfalls can be of time constraints experience where poor time management played a part in further obtaining data and analysing such information with better credentials. Additionally, the data was relatively new where information accessibility was limited in some aspects of research. For future research, the research plans on implementing a solution towards where choosing a research project with more literature and publications on would make the research more in-depth and precise. Additionally, using additional methods of data collection would be highly beneficial to better improve future projects in terms of previous research and analysis of data and interpretations. An earlier time-horizon of research being conducted would also be impactful.

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Appendices

Appendix 1:

SUPERVISOR CONTACT LOG

Student Number: 2136529/1
Degree Programme: BSc (Hons) Accounting and Finance
Proposed Dissertation Title (as submitted to Office): Adoption of Artificial Intelligence into Accounting and Finance Systems
Agreed Title (as agreed with supervisor): Adoption of Artificial Intelligence into Accounting and Finance Systems
Supervisor's Signature:  Date: 11/04/2024

Date and time of Meeting	***Notes***	**Supervisor's initials**
20/01/2024	Provided an overview of entire Dissertation Process and discussion of writing research question and objectives	
27/01/2024	Provide guidelines to Chapter 1 and review research topics	
03/02/2024	Review Drafts Chapter 1	
17/02/2024	Discussion and guidelines to Chapter 2	
02/03/2024	Discussion and guidelines to Chapter 3	
09/03/2024	Review of Drafts Chapter 1-3	
23/03/2024	Discussion and guidelines to complete Chapter 4	
06/04/2024	Discussions and guidelines for chapter 5, Formatting document for submission Review of Drafts	
06 to 11/04/2024	Review of Final Drafts via email	

This form is to be submitted for signature by your supervisor on <u>every</u> occasion that you consult him or her regarding your dissertation. The completed log <u>must</u> be submitted with your dissertation.