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# **Accountants' perception of AI and their willingness to utilize it**

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Master's thesis

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## Abstract

Artificial intelligence has revolutionised many industries and could evolve the accountancy industry as well. However, the traditional role of the accountant could be risked by doing so, as the security of their jobs is becoming a concern and the need for accountants to increase their skills is being called out. Current literature Current research focuses on what AI can do for the accountancy sector. However, literature should look at the accountant and whether they are willing to accept such change, or if they are ready for it.

This thesis aims to gain insight into the accountant's perceived potential of AI and their willingness to utilize it, by asking the following research question:

*How do accountants perceive the potential of using AI in different accounting tasks and how does the context influence their willingness to utilize AI?*

To research this question a case study has been conducted. The data for this case study has been collected through semi-structured interviews, based on the Task-Technology Fit framework by Goodhue and Thompson. In total 11 accountants from Govers Accountants/Adviseurs have been interviewed. The organisation is starting to look into how they might apply AI.

The results show that accountants support the idea that AI can become a tool in their daily work. However, having AI completely take over tasks leaves mixed reactions. Furthermore, increasing quality, efficiency and delivering added value to clients are seen as the positive consequences of AI use although, there is still worry regarding the explainability and dependability of AI due to a lack of knowledge and guidance from laws & regulations.

From a practical point of view, this research shows a need for enhancing accountants' knowledge of AI through training, where concrete and practical examples will be key to making the added value that AI will bring clear. In addition, there is a need to keep up-to-date with the technological developments in the market, possibly through collaborations with other organisations. These recommendations aim to assist accountancy organisations in becoming aware of what tasks AI could perform and what triggers stakeholders into utilising AI in the workplace, so that the AI implementation is successful and the AI is fully utilised.

From a theoretical perspective, this research contributes to the literature by proposing variables that influence the willingness of accountants to utilize AI. The research advocates a need for clear regulations on the use of AI in accountancy, as well as proactive measures regarding the current lack of knowledge regarding AI.

**Key words:** AI, Accountancy, utilization, Task-Technology Fit.

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In January of 2024, I started writing my master's thesis on the perception of accountants on the use of AI in different accounting tasks. With this thesis, my master study in Information Technology for Enterprise Management will come to an end, closing the final chapter of my student journey.

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As I am closing this last chapter of my student journey, and looking forward to the new opportunities that will come my way, I present to you my master's thesis.

Laura van IJzendoorn

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# 1 Introduction

## 1.1 Problem statement

In recent years, AI has become a hot topic in research. Although the full potential of AI is yet to be discovered, AI is already being used in numerous ways in all kinds of sectors (Pannu, 2015; Leitner-Hanetseder et al., 2021). Accountancy is one of those fields where AI could prove it's worth. The accountancy sector is currently dealing with a low inflow of students in accountancy majors (Burke et al., 2023), regular changes in regulations (Accountingweb, 2023) and new subjects such as ESG (Environment, Social, Governance), making it difficult for the accountants to keep up and ensure compliance (Zantinge, 2021).

AI could help accountancy firms as Hasan (2022) explains that the technology can automate business processes as well as gain more insights into these processes through data analysis. Although AI could bring a lot to the table in the accountancy industry, AI can also be perceived as a threat to the accountancy industry. In news articles, there is a lot of speculation regarding AI taking over jobs. An article of the BBC mentions that "Artificial intelligence (AI) could replace the equivalent of 300 million full-time jobs" (Vallance, 2023). According to the article, the jobs that are in most danger of being taken over by AI are in administrative and legal professions (Vallance, 2023). This would mean that accountants could be in danger of losing their jobs.

At the same time, academic literature is undermining this loss of jobs. They state that instead of thinking AI is out there to take our jobs, the accountancy industry should start thinking of AI as 'enabling tools', stating that accountants are "professionals who provide actionable insights and their professional skepticism is not something a machine can replicate" (Goh et al., 2019). AI is still something to be wary of, although academics are clear in the need to incorporate AI into the day-to-day work of the accountancy field so as to not stay behind on technological advancements, it is also important to note the characteristics of AI that make for implications when it comes to the ethical aspects. These ethical aspects can be the "lack of controllability of the underlying decision criteria, the lack of accountability for unintended consequences and the lack of significant explicit costs, causing some to underestimate AI's ethical impact" (Patelli, 2019). Knowing these implications one can wonder if and when accountants

would be willing to incorporate AI into their day-to-day tasks, especially since accountants are typically viewed as risk-averse and non-committal (Conway & Byrne, 2018).

## 1.2 Research question

This research aims to establish an insight into what influences the willingness of the accountancy industry to adopt AI. This has led to the following research question:

*How do accountants perceive the potential of using AI in different accounting tasks and how does the context influence their willingness to utilize AI?*

The context in which this research question will be answered will be small to medium Dutch accountancy firms. To answer this research question, the research will consist of a literature review and a case study which will investigate ways AI can support the accountancy industry, adoption models and barriers for accountants to adopt AI.

## 1.3 Relevance

### 1.3.1 Theoretical relevance

Current research focuses on what AI can do for the accountancy field as well as how it can be implemented in the current work processes and systems (Sherif & Mohsin, 2021; Peng et al., 2023; Bishop, 2020). Whilst accountants are seen as risk averse (Conway & Byrne, 2018) and AI can have biases that need to be taken care of when AI is implemented (Patelli, 2019). This leaves a research gap in what it will take for accountants to accept AI and implement it in their day-to-day tasks. This research will enrich the current literature with possible variables that will influence this decision to move towards the utilization of AI in the accountancy field.

### 1.3.2 Practical relevance

As we move towards the practical relevance of this research, as stated before the accountancy sector is dealing with a lack of potential workers, a low inflow of accountancy students (Burke et al., 2023) and the increasing scope of work due to increasing regulatory pressure and new subjects being introduced regularly

(Accountingweb, 2023; Zantinge, 2021). All of this will lead to accountants getting a heavier workload than they can handle.

To refrain from overloading the accountancy sector with an unfeasible workload, a possible solution would be to introduce AI into the workplace, because accepting AI could drastically transform the accountancy field by taking over some of the accountants' tasks (Hasan, 2022; Emetaram & Uchime, 2021; Peng et al., 2023; Bishop, 2020). This research will provide insight into what it will take for accountants to accept AI as a tool to lighten the workload of their day-to-day tasks. The outcome of this research could lead to indications of what is needed to potentially lower the hurdles to implementation of AI specifically in the accountancy sector.

#### **1.4 Prior research**

Considering earlier studies, current literature examines the drawbacks that currently accompany the use of AI, including ethical considerations (Goh et al., 2019; Peng et al., 2023; Patelli, 2019). Despite these drawbacks, current literature suggests that the accountancy industry needs to implement AI to stay relevant (Emetaram, 2021; Hasan, 2022) and research is already looking into how AI should be implemented within the accountancy and auditing sectors (Rikhardsson et al., 2022; Doshi et al., 2020).

Some of the potential that AI has within the accountancy industry (Patelli, 2019; Bishop, 2020; Sherif & Mohsin, 2021; Gillet, 1991) is its ability to eliminate tasks that are repetitive within the daily workload (Bishop, 2020), limit the ethical blindness of the accountant (Sherif & Mohsin, 2021) and the ability to incorporate knowledge from different sources such as laws and experience of a client (Gillet, 1991).

Furthermore, studies also investigate how this will alter the role of the accountant, stating that the implementation of technologies such as AI will lead to accountants needing to adopt new skills (Moll & Yigitbasioglu, 2019). Other studies explain some of the challenges associated with applying AI, which is mostly focused on data privacy and security (Goh et al., 2019; Peng et al., 2023).

Lastly, the research of Vărzaru (2022) has specifically investigated technology acceptance in Managerial Accounting using the Technology Acceptance Model (TAM). Her findings suggest that there are more antecedent variables to be discovered and that future research should be conducted with different samples such as accountants.

## **1.5 Structure of the thesis**

This thesis is structured as follows. Chapter 2 defines some important concepts and introduces the technology-fit framework. The third chapter presents the case study and literature review methodology. Afterwards, chapter 4 illustrates the results of the case study. Furthermore, chapter 5 discusses the results and shows implications for IS research and practice, the study's limitations and concludes the thesis with possibilities for future research.

## **2 Literature review**

The relevant literature for the research is presented in this chapter. The purpose of the literature review is to give a thorough analysis of research that has previously been conducted on the use of AI in the accountancy sector to define what tasks AI might be able to improve or automate for accountants and what advantages and challenges the implementation of AI might hold. Furthermore, the literature review will investigate the theoretical framework that will be used for this research.

### **2.1 Artificial Intelligence**

#### **2.1.1 Defining Artificial Intelligence**

Since AI is a current topic of interest in the Information Systems (IS) field, many different definitions of AI have already surfaced. AI can be compared to human cognition where one tries to get a machine to behave as humanlike as possible, also called a “simulation of human intelligence” (Thakker & Japee, 2023). This definition focuses on the problem-solving and product creation aspect of AI (Kaplan & Haenlein, 2019).

On the other hand, one could also put more focus on the systematic approach of AI, as Laine et al. (2024) argue that AI can be defined as the ability of a system to “interpret and learn from data and achieve goals through adaptation and, more broadly, to an advancing frontier of computing”. Thakker & Japee (2023) state that another way to define AI is to look at the technical aspect. By leveraging techniques from machine learning (ML), AI leverages external information which it receives through Internet of Things (IoT) devices or other Big Data sources as an input to find underlying rules and patterns. These techniques can be incredibly complicated like deploying deep neural networks or rather simple like a regression analysis.

Berente et al. (2021) propose that AI should be looked at as a process, defining AI as a “frontier of advancements” that makes use of human intellect to solve increasingly complicated decision-making issues. This boils AI down to whatever is next in computing innovations.

The definitions stated by these different sources are all different, however there is a clear overlapping factor between them all. Namely, each source's definition describes the problem-solving ability of AI, which the AI does by making use of data.

### 2.1.2 Subsets of Artificial Intelligence

AI includes more than just machine learning, as can be seen in figure 1, AI is made up of several subcategories that all contribute to enabling machines to mimic human intellect and carry out cognitive tasks. Depending on the task at hand, a different subset of AI should be used.

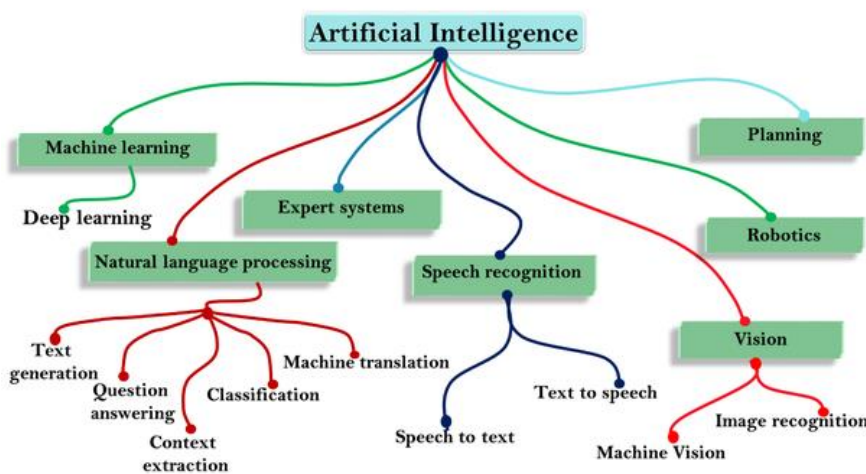


Figure 1. AI Technologies<sup>1</sup>

To highlight some of these subcategories, we will look into Machine learning (ML), Natural Language Processing (NLP) and Expert systems. According to Thakker and Japee (2023), the goal of ML is to create statistical models and algorithms that let machines gain insight from data and improve their performance over time without needing to be explicitly programmed. Algorithms using ML can examine enormous datasets, spot patterns, make predictions or act. NLP, however, focuses on giving machines the ability to comprehend, interpret and produce human language. NLP includes methods for sentiment analysis, language generation, machine translation, parsing, and semantic comprehension. All of this allows AI systems to communicate with humans via written or spoken language. Then there are also expert systems. Their

<sup>1</sup> From "Difference between AI, Machine Learning, NLP and Deep Learning" [Figure], by M. Mohadikar, 2021, *Medium* (<https://becominghuman.ai/difference-between-ai-machine-learning-nlp-and-deep-learning-9f63066087f1>)

function is to mimic human knowledge and skill in a particular discipline. Expert systems can reason, make suggestions and resolve difficult issues by using a knowledge base and a set of rules.

## **2.2 Tasks of an accountant**

Accountants guarantee that financial statements reflect a truthful and fair picture of the economic reality being measured and reported by either creating and presenting these statements themselves or auditing ones that already have been created. Accountants must go through distinct procedures for each of these operations to supply the necessary data for both internal and external use (Saxunova, 2017; Imene & Imhanzenobe, 2020). Accountants use these financial statements and data to describe the overall health of an organisation or its individual parts. The business's narrative is conveyed through accounting ratios and numbers (Imene & Imhanzenobe, 2020).

To create or audit these financial statements, the accountants have to record all business transactions and compile these transactions into a structured balance sheet, which can be quite time-consuming (Khaled AlKoheji and Al-Sartawi, 2023). As companies are becoming more and more digital, the amount of data that needs to be compiled increases as well, making the accountancy work quite data-reliant (Imene & Imhanzenobe, 2020). Although more data is becoming available through technology, the accountancy work, a substantial part of the financial statements still relies on judgements and estimations (West and Buckby, 2023). Furthermore, to create the financial statements, the accountants have to define those that have an interest in the organisation and their informational needs, to which they shape the financial statement, which is referred to as materiality (Frishkoff, 1970).

Lastly, all books are closed at the conclusion of the fiscal year, and the total numbers are combined to create the end-year financial statements. External auditors will then audit the financial statements to make sure they accurately reflect the economic reality being measured (Imene & Imhanzenobe, 2020).

## **2.3 Change resistance**

User approval and change management strategies are necessary when adopting AI algorithms (Thakker & Japee, 2023). Glikson and Woolley (2020) emphasize, that an

organization's ability to successfully integrate AI depends on how much staff members trust the technology. This trust is determined by the type of AI representation – robot, visual or embedded – and its capabilities. Moreover, Glikson and Woolley (2020) also state that an AI algorithm's dependability, transparency, tangibility, and immediate behaviour are what lead to cognitive trust in the technology. The significance of AI's anthropomorphism – The ability to act like something non-human is humanlike – lies in the impact on emotional trust.

When focussing on accountants, according to Ahmad (2024), accountants may be resistant to the adoption of AI, primarily due to concern about the possibility that automated systems could potentially replace human labour and because there is a general lack of trust in the accuracy of content generated by computers.

As stated by Naik et al. (2022 as cited in Ahmad, 2024), transparency is essential to building confidence in AI algorithms. The authors state that informed consent and user awareness – which includes educating people about AI technology, and its potential drawbacks – is crucial to achieve this transparency. Schweitzer (2024) underlines that people can develop trust in AI algorithms when they are aware of how they make judgements, particularly in areas with significant consequences.

Another reason for accountant's change resistance can lie in the stereotypical way that accountants are viewed. Accountants are often viewed as perfectionistic, organized people who are characterized by a reliability that lies in their carefulness, responsibility, and rigorousness (Leao & Gomes, 2022; Saxunova, 2017). This carefulness and sense of responsibility is what can make accountants more resistant to change, as their reluctance means they will first observe how AI works for others before applying it themselves (Schmidt et al., 2020).



## 2.4 Artificial intelligence in accountancy

### 2.4.1 Capabilities of AI

As shown in Table 1, AI can perform a variety of tasks for the accountancy sector. The mundane, trivial, and manual tasks that accountants encounter daily can be automated using subsets of AI such as robotic process automation (RPA) and ML. These technologies can handle tasks including data entry, data validation, reconciliations, and report generation. By employing AI to automate these tasks human error can be decreased. This leads to improvements regarding efficiency and accuracy, while also allowing the accountants to redirect their time and energy towards higher-value tasks and problems that require critical thinking and contribute to individual and organizational achievements (Thakker & Japee, 2023; Peng et al., 2023; Aryal & Callahan, 2022; Nayak & Sahoo, 2021; Peace, 2021; Vărzaru, 2022). By having accountants focus on these higher-value tasks, a competitive edge can be achieved as decision quality will be improved (Vărzaru, 2022).

Table 1. Capabilities of AI

<b>Capabilities of AI</b>	
Automate manual tasks	Thakker & Japee (2023); Peng et al. (2023); Aryal & Callahan (2022); Nayak & Sahoo (2021); Peace (2021); Vărzaru (2022).
Continuous auditing	Brands (2016) ; Aryal & Callahan (2022).
Automate financial analysis	Munoko et al. (2020); Peng et al. (2023); Schweitzer (2024).
Decrease fraud	Palazzo et al. (2012); Sherif & Mohsin (2021).
Contract review	Thakker & Japee (2023).
Prepare financial statement	Thakker & Japee (2023) ; Aryal & Callahan (2022).

AI algorithms may alert the accountant when non-compliance issues and unusual activity in transaction patterns are discovered, enabling continuous auditing. The article by Brands (2016) adds to this by explaining that the practice of continuous auditing through RPA provides access to real-time financial data, enabling ongoing financial reporting and analysis. According to the FSN Publishing's 2017 survey (Aryal & Callahan, 2022), RPA has accelerated the month-end closing process and reduced

mistake rates. The survey explains that through RPA, firms can increase their accuracy and efficiency while lowering costs by freeing human resources from handling manual, error-prone jobs.

AI-powered data analysis can efficiently manage vast amounts of financial data, producing insightful information that improves decision-making and empowers accountants to provide their customers with strategic and accurate financial advice. Apart from that, AI algorithms can also analyse these vast amounts of data to spot trends, patterns, and abnormalities. This improves financial forecasting and analysis, which helps businesses make better decisions and discover possibilities and hazards (Peng et al., 2023).

Additionally, Munoko et al. (2020) explain that AI can automate the analysis of financial data to evaluate controls, discover errors, anomalies, or trends suggestive of fraud or errors, and expose areas of potential risk. This information may be used to plan audits and assess risks, as auditors can concentrate their attention on areas that pose a greater risk. This can lead to increased efficiency and quality. This reactivity of AI aligns with regulatory bodies' need for accurate and fast financial reporting. It is crucial to emphasise that accounting judgements must conform to regulatory standards and AI's role in this regard cannot be overlooked (Peng et al., 2023).

Moreover, Schweitzer (2024) argues that due to its capability to examine large volumes of data, AI can provide accountants with substantial insights that were previously overlooked by more traditional methods. Additionally, ML can decrease intended and unintended fraud activities that occur during the preparation of financial statements due to ethical blindness, which can be defined as one's momentary incapacity to see the moral implications of a particular choice (Palazzo et al., 2012; Sherif & Mohsin, 2021).

Furthermore, AI can be of use in the form of NLP technology, according to Thakker and Japee (2023), as this allows computers to comprehend and interpret human language. In accountancy, NLP can automate document analysis, contract review, and communication with clients, increasing efficiency and accuracy.

Thakker & Japee (2023) show that financial reporting skills have significantly improved by "Enhanced Financial Reporting-Technology". Sophisticated accounting software may provide detailed and adaptable financial statements, increasing accuracy and

cutting down on reporting time. Additionally, Technologies like RPA make it easier to prepare consolidated financial statements for businesses with several entities by allowing aggregation of financial data from various sources, leading to a shortening of the “month-end closing process” (Aryal & Callahan, 2022).

#### 2.4.2 Current state of the art

The Big Four firms – Deloitte, PwC, EY, and KPMG – are now testing the use of AI. When their uses of ML and AI are examined, two similar tendencies emerge. Firstly, the accountancy sector is spending more and more on AI and integrating it into the core business. Second, according to the Big Four, the future prosperity of the accountancy sector is heavily dependent on AI (Zhang et al., 2020). The different tasks that the AI algorithms of the Big Four perform are described in Table 2 and will be explained in more detail in this chapter.

Table 2. State of the art

<b>State of the art</b>	
Analyse documents for terms and patterns	Deloitte & EY
Intelligent audits	Deloitte
Data Analytics	Deloitte, EY & KPMG
Monitor voice interactions	Deloitte
Computer generated text for reporting	Deloitte, PwC, EY & KPMG
Fraud detection	PwC, EY & KPMG

##### 2.4.2.1 Deloitte

Deloitte has deployed an ML called ‘Argus’, whose main responsibility is to analyse contracts in order to find established terms and patterns. Deloitte has also created ‘Avenir’ for more intelligent audits of small businesses and ‘Optix’ for data analytics (Damerji & Salimi, 2021). Furthermore, the organisation has advanced significantly in its use of NLP and Deep Learning. Their voice analysis platform called the ‘Behaviour and Emotion Analytics Tool (BEAT)’ can monitor voice interactions, detect high-risk interactions, and guide interactions that may end negatively, also outlining the specific reasons why they occur (Zhang et al., 2020).

To rid of one of the most tedious and time-consuming tasks in auditing, Deloitte has collaborated with Kira Systems to use NLP for the documentation, reviewing and extraction of pertinent terms from contracts, leases, employment agreements, invoices, and other legal documents (Aryal & Callahan, 2022; Damerji & Salimi, 2021). Deloitte uses Natural language generation (NLG), a subset of NLP, to produce computer-generated text for taxation reasons. Deloitte uses NLG to generate comprehensive narrative summaries of individual tax returns. Deloitte's tax experts use these summaries to give customers more specific financial advice (Zhang et al., 2020). Deloitte has created an automated platform for document reviews employing cognitive technologies and NLP advances. This platform can read a collection of documents automatically finding pertinent information inside them. Thanks to the platform's many benefits, Deloitte's employees can analyse all kinds of unstructured data fast and precisely (Zhang et al., 2020).

#### *2.4.2.2 PricewaterhouseCoopers (PwC)*

PwC utilizes AI as well, making use of 'Halo' a system that recognizes and highlights journal entries that pose a greater risk, as this would be a very tedious and repetitive task if done manually (Aryal & Callahan, 2022; Damerji & Salimi, 2021; Munoko et al., 2020). Additionally, PwC gathers information using RPA technology to assess trial balance sheets, determine the filling status of each entity, and convert data into tax bases. According to PwC, these procedures make it easier to prepare and amend tax filings, submit tax payments, and respond to inquiries from associated parties (Zhang et al., 2020). To maximise the potential of AI technology in gathering extensive data and information for quick and accurate analysis as well as to increase "audit quality, automation levels, and operational efficiency" PwC has a self-owned AI audit lab (Zhang et al., 2020).

PwC has created the 'GL.ai' robot in collaboration with H2O.ai. The GL.ai robot incorporates AI technology into the accounting practice. Expanding upon the training algorithm, GL.ai leverages ML technology to assimilate PwC's global expertise, therefore stimulating cognitive processes and rendering choices akin to those of a seasoned auditor. The general ledger abnormalities and suspicious transactions are detected by GL.ai, which is designed to examine each uploaded transaction in

milliseconds. As a result, it has grown to be a crucial competitive advantage for PwC and raised the corporate value of the business (Zhang et al., 2020).

NLG has also been successfully utilised by PwC. PwC has collaborated with international financial institutions to automate customer understanding (KYC) reporting, by using Narrative Science's AI power engine 'Quill', KYC reporting has historically been a labour- and resource-intensive process, but the implementation of Quill has made it possible for PwC to assist customers in the reduction of reporting time, saving over \$1 million annually. PwC reduces the time needed to compile a report from several hours to a matter of minutes, whilst improving overall report uniformity and quality, by using Quill to create automated narratives that flag wrongdoing based on risk models and data (Zhang et al., 2020). In addition, PwC has collaborated with Narrative Science again to create automated narratives for anti-bribery and anticorruption (ABAC). ABAC reports often need seasoned compliance specialists to process enormous volumes of data to find any document infractions (Zhang et al., 2020).

#### *2.4.2.3 Ernst & Young (EY)*

AI has also been applied for various purposes by EY. First, they describe creating "audit-ready work-papers" through increased automation that combines several techniques (Munoko et al., 2020). EY is mostly concerned with big data and analytics in audits. They want to provide audit analytics by combining it into their audit approach and processing sizable client datasets within EY's environment (Damerji & Salimi, 2021). They also incorporated an intelligent classification engine to swiftly gather pertinent data to access purchasing synergies in mergers and acquisitions. This is a notable advancement over the manual process of creating spreadsheets, pivot tables, and reading lines of data of non-standardized accounts payable and accounts receivable (Zhang et al., 2020). EY has further embraced ML technology to detect fraud to increase professional productivity. Using ML, EY's "Fraud Investigation and Dispute Service (FIDS)" has identified questionable invoices with a 97% accuracy rate (Zhang et al., 2020). NLP technology is used by EY in a number of its business processes. For instance, EY employs NLP to extract information and as a human-in-the-loop validation when the Internal Revenue Service (IRS) announces new lease regulations (Zhang et al., 2020).

#### *2.4.2.4 Klynveld Peat Marwick Goerdeler (KPMG)*

KPMG has teamed up with IBM's Watson AI to develop AI auditing solutions. To assess financial statement risks, KPMG is also utilising cutting-edge predictive analytics from the car racing company McLaren Applied Technologies (Damerji & Salimi, 2021). Within the organisation, KPMG established a team named 'KPMG Ignite' in 2017, with the goal of concentrating on research and development, which has become a technical partner ecosystem that speeds up the development of AI applications (Zhang et al., 2020).

KPMG has also unveiled an innovative method for evaluating risks. KPMG's Dynamic risk assessment (DRA) links and visualizes four-dimensional risk, which considers the interconnection of risks and the speed at which they may impact corporate operations. This helps auditors to observe how risks spread to build important clusters of risks. These fresh perspectives provide audit experts with a higher degree of risk assessment to provide organizations with knowledge on effective ways to manage these risks (Zhang et al., 2020). The organisation has also created "K-analyzer," a tax analysis tool that can analyse thousands of transactions in mere minutes, based on RPA technology. K-analyzer reduces mistakes by downloading data from firm's ERP systems, automating the analysis of massive amounts of data, and providing a concise summary of the findings. This procedure can analyse tax-sensitive data in a cost-efficient way and produce a transparent audit trail that is approved by tax authorities (Zhang et al., 2020).

KPMG has created a robot called the 'FBT Automator' to shorten the time needed to finish FBT (Fringe Benefits Tax) compliance duties. With the use of fuzzy word matching and numerical coding, The FBT Automator can prepare FBT for return work files without the need for human review (Zhang et al., 2020). Additionally, KPMG has introduced the Payroll Tax Automator tool, assigning wage codes to the appropriate payroll tax wage type, and automatically filling in the payroll code (Zhang et al., 2020). the KPMG Automatic Exchange of Information (AEOI) reporting tool creates and embeds the necessary XML files for submission employing hundreds of data validation checks to expedite the reporting process. To convert system data into appropriate reporting forms, including the Common Reporting Standard (CRS) and the Foreign Account Tax Compliance Act (FATCA), KPMG provides licencing solutions and hosting services (Zhang et al., 2020).

### 2.4.3 Challenges of AI

While the implementation of AI has the potential to improve accountancy, several challenges need to be considered, such as ethical considerations and the costs attached to implementing AI. The challenges that are being discussed and the relevant literature have been summarized in Table 3.

Table 3. Challenges of AI

<b>Challenges of AI</b>	
Infrastructure	Thakker and Japee (2023); Nayak & Sahoo (2021); Ahmad (2024); Munoko et al. (2020); Sambasivan et al. (2021); Värzaru (2022).
Ethical considerations	Kokina & Davenport (2017); Barišić (2022); Ahmad (2024); Munoko et al. (2020); Lu et al. (2018); Thakker and Japee (2023).
Training	Thakker & Japee (2023); Emetaram & Uchime (2021); Munoko et al. (2020); Kokina & Davenport (2017); Aryal and Callahan (2020).
Cybersecurity	Munoko et al. (2020); Nayak & Sahoo (2021); Tucker (2018); Horvitz & Mulligan (2015); Thakker and Japee (2023); Emetaram & Uchime (2021); Ahmad (2024); Schweitzer (2024).
Responsibility	Munoko et al. (2020); Aryal & Callahan (2022); Lu et al. (2018); Barišić (2022); Ahmad (2024); Schweitzer (2024).
Costs	Aryal & Callahan (2020); Nayak & Sahoo (2021).

#### 2.4.3.1 Infrastructure

Thakker and Japee (2023) emphasize that for AI to execute effective analysis, precise and high-quality data are required; this necessitates a high degree of data integrity, consistency, and system compatibility. Furthermore, substantial hardware and processing power are needed to run an AI algorithm (Nayak & Sahoo, 2021). This highlights Ahmad's (2024) claim that the integration of AI is quite an intricate and challenging process. It is even possible that older systems lack the architectural foundation needed to integrate AI. This might result in a major effort to ensure data synchronization, seamless operation integration and compatibility with AI.

A substantial set of data is also necessary to ensure the accuracy of the AI algorithm (Munoko et al., 2020; Nayak & Sahoo, 2021). The issue, however, is that most organizations do not actually establish or adhere to any standards regarding data quality, thereby lowering the AI algorithm's accuracy as flaws in the data will result in flaws in the algorithm according to Sambasivan et al. (2021). Additionally, there is a likelihood that the speed at which AI analyses and interprets data may result in a lack of credibility from the absence of human factor monitoring, which might lower the quality of information (Vărzaru, 2022).

#### *2.4.3.2 Ethical considerations and biases*

When the use of AI is considered, ethical issues need to be taken into consideration as well. These ethical considerations include bias, data privacy and possible job effects. To guarantee responsible AI usage, organisations need to set up ethical policies and procedures according to Thakker and Japee (2023).

Concerning ethical issues, the Association of Chartered Certified Accountants (as cited in, Munoko et al., 2020) acknowledges that one of the things that worries individuals about AI is that, in contrast to other technologies, AI is one of the few that can make discretionary decisions because of its potential of identifying intricate patterns. Lu et al. (2018) argue that several general traits that characterize the human brain including “self-understanding, self-control, self-consciousness and self-motivation” are absent from the current ‘weak AI’, which could compromise the ethical principles of safety and nonmaleficence. Furthermore, if the auditor is not able to explain the rationale of the AI or if there is automation bias involved – over-reliance on AI, resulting in errors of omission or commission –, the accountant's ethical code of Due Care could be impaired (Munoko et al., 2020).

Furthermore, AI can result in biases such as data-driven bias, bias through interaction, emergent bias, conflicting bias, and algorithm bias (Kokina & Davenport, 2017; Barišić, 2022; Ahmad, 2024). Most of these biases stem from the data that the algorithm is trained on, as data of low quality or data with bias, will negatively influence the AI algorithm (Ahmad, 2024).



### *2.4.3.3 Training*

Once AI implementation is decided upon, it is crucial to ensure that the necessary knowledge and experience are available inside the organisation to comprehend the technology, enabling accountants to embrace the use of AI and to continue to be relevant in business (Thakker & Japee, 2023; Emetaram & Uchime, 2021).

According to Ku Bahador and Haider (2012), IT has already changed the role of accountants throughout the years as it changes the way “data is collected, stored, and aggregated for preparation of accounting and finance related information”. Because of this, accountants need to develop the right IT competencies and skills. Jackson et al. (2022) add that it is especially important for early career accountants (ECAs) as they are expected to have the skills to work with emerging technologies and how this interacts with existing knowledge and standards of accountancy, they state that “ECAs need to be digitally literate.” However many in the field are concerned about currently acquired level of these skills and competencies by the accountants, as it is a struggle to scout hires with the appropriate skill set (Jackson et al., 2022; Ku Bahador & Haider, 2012). Ku Bahador and Haider (2012) explain that this concerning level of skills and competencies is caused by a lack of knowledge on what level of skills and competencies the accountants need.

Munoko et al. (2020) add to this by explaining that while AI can solve complex problems more quickly than humans can, it can also make it harder to understand how the algorithm produced its results. This can lead to issues regarding a lack of transparency and accessibility of the AI algorithm (Kokina & Davenport, 2017). To gain this transparency, mechanisms to explain AI-generated output need to be put in place (Thakker & Japee, 2023).

The choice of whether an organisation develops the algorithm themselves or purchases the software from a third party will determine how valuable the expertise in fields like data science, machine learning and AI is (Thakker & Japee, 2023). According to Aryal and Callahan (2020), future accountants will need to learn how to “mine structured and unstructured data from a wide range of sources, identify potential data risks and problems, and apply data analytics to turn raw data into useful insights”. Additionally, knowing the workings of AI itself can aid in their mastery of data analysis and improve their comprehension of financial statements.

#### *2.4.3.4 Cybersecurity and privacy*

The training and use of AI algorithms may give rise to privacy, confidentiality, and data protection concerns, especially if such algorithms employ data sources that include personal data (Munoko et al., 2020; Nayak & Sahoo, 2021). To go into further detail on privacy issues, Tucker (2018) raises the issues of data spillover, repurposing, and persistence. Individuals find it more and more difficult to comprehend what others may know about them based on what they have knowingly or unknowingly communicated because of the lack of transparency. Therefore, important ethical issues include the assurance of the purpose of data retrieval and the duration of data retention (Horvitz & Mulligan, 2015).

Munoko et al. (2020) further clarify that the complexity and lack of transparency might result in accessibility issues, raising the question of how to effectively regulate something that is still so complex. To this, Thakker and Japee (2023) add that legal frameworks and regulatory considerations may be having trouble keeping up with AI's technical advancements, meaning that businesses will have to navigate and abide by evolving regulations pertaining to the use of AI, data security and privacy.

In addition to privacy concerns, cyber-defence is necessary to effectively safeguard and maintain the security and safety of a system (Emetaram & Uchime, 2021). As noted by Soori et al. (2023, cited in Ahmad, 2024) the integration of AI in the accountancy sector involves handling sensitive financial data that must be kept highly confidential. They also state that protecting this data from hacking, infiltration and breaches is a critical concern.

Establishing thorough data security measures that incorporate encryption, permissions and secure storage is crucial to achieving protection of this sensitive data (Ahmad, 2024). Accountants using AI-powered tools need to consider the kind of data that is being gathered, how it will be stored, secured, access controls and the threat of data breaches or unauthorized access (Schweitzer, 2024).

#### *2.4.3.5 Responsibility*

As mentioned, AI is one of the few technologies that is capable of discretionary decisions. However, these decisions need to be verified by a human mind to ensure that they do not lead to unfavourable decisions or even unethical behaviour (Munoko et al., 2020; Aryal & Callahan, 2022). This unethical behaviour is the result of the lack of human characteristics related to morality as mentioned by Lu et al. (2018). This and the possibility of malfunctioning in the code of an AI algorithm, make it important for organisations to consider the effect on their reputation that this might have (Aryal and Callahan, 2022).

Aryal and Callahan (2022) argue that further research and increased confidence in AI are required before it can be fully incorporated into the workplace. Furthermore, complex and singular circumstances can be at risk of being inaccurate or unreliable due to the AI algorithm's reliance on repetition.

In the same way, the widespread use of AI in accountancy might lead to unforeseen consequences. The idea that an AI might be able to function without human intervention is fascinating however, the risks involved would rise dramatically. The most prominent risks associated with AI, such as ethical dilemmas and risks to human creativity, will only worsen as AI develops and is further incorporated in accountancy.

This begs the question of who should be held accountable in the event of a potential malfunction. According to Munoko et al. (2020), although users have always been held accountable for traditional technologies, this should not be the case with the unpredictable nature of an AI algorithm's potential future behaviour.

However, The Institute of Chartered Accountants in England and Wales (ICAEW, 2019 as cited in Barišić, 2022), states the entire opposite "AI systems cannot be held accountable for their decisions, even where they are explainable".

Ahmad (2024) explains that in domains where the decisions taken by an AI algorithm carry a significant impact, determining who should be responsible and who should be held accountable for these decisions might prove to be a complex challenge. Schweitzer (2024) elaborates, saying that various stakeholders bear distinct levels of accountability for AI algorithms.

Firstly, the developers must make sure that the algorithm is created and implemented in a way that upholds ethics, mitigates bias, is transparent, and protects privacy. This necessitates rigorous security protocols, algorithmic fairness, and thorough evaluation of the training data.

The algorithm's deployers come in second. They must make sure that the algorithm is used in a way that serves its intended purpose and does not harm its users. This entails monitoring for bias, fixing issues and continuously refining the algorithm's limits and capabilities.

Lastly, the users. This stakeholder group is crucial in comprehending the algorithm's advantages, disadvantages, and restrictions as well as reporting any issues they encounter. Responsible utilization of the algorithm is also one of their responsibilities. This lessens possible risks and aids in algorithm refinement for the developers and employers.

Schweitzer (2024) notes that in addition to the stakeholders, the larger ecosystem also bears some of the responsibility. Individuals, regulators, and Civil Society Organizations (CSOs) make up this ecosystem. Encouraging an environment of open communication and establishing explicit roles, duties and liability frameworks are crucial in making all parties responsible for the behaviour of the AI algorithms they develop and utilize.

#### **2.4.3.6 Costs**

The challenges mentioned above – data quality, hardware, processing power, setting up policies and procedures, training of personnel and cybersecurity – contribute to the significant upfront costs that AI implementation demands. According to Web\_FX (Aryal & Callahan, 2020), AI software can cost up to \$300,000 when purchased from a third party or custom-developed. Since AI is something that is not fully understood or developed the opportunity costs of the implementation of AI should also be kept in mind.

Given these high upfront expenditures, AI investments are likely to concentrate on areas that will yield the highest financial returns, particularly the potential for cost reduction or areas that are critical to maintaining a competitive edge. Even if they could be advantageous other areas might not have a compelling investment case. Similarly, there

could not be enough market demand for software companies to invest in leveraging ML to expand further intelligent solutions in specialized accounting areas (Nayak & Sahoo, 2021)

## 2.5 Theoretical framework

Figure 2 illustrates the technology-to-performance chain by Thompson and Goodhue (1995) which is the theoretical framework that will be used as the basis for this case study. As shown in Figure 2 the framework of Thompson and Goodhue (1995) is based on two research streams – The Theories of Fit and The Theories of Attitudes and Behaviour – and examines how individual performance is affected by how well user tasks and technology fit together.

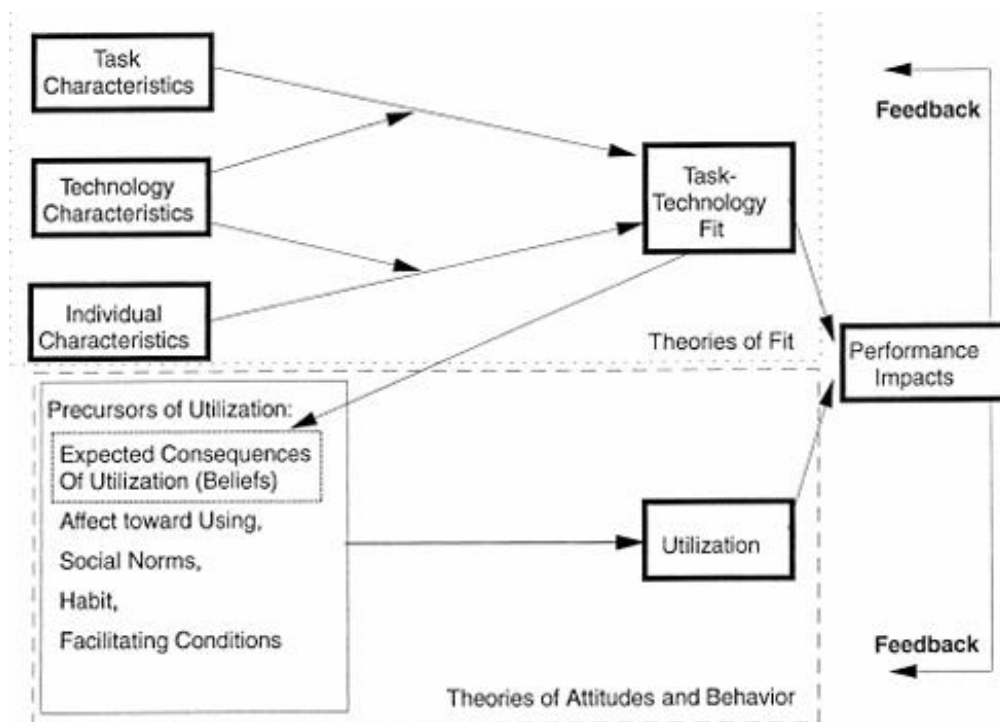


Figure 2. Technology-to-Performance chain<sup>2</sup>

For the case study of this thesis, the tasks that will be looked into will be the tasks regarding the preparation of financial statements and the auditing of these statements. As for the AI tools, as the company has not implemented AI yet examples of AI

<sup>2</sup> From “Task-Technology Fit and Individual Performance”, by D.L. Goodhue & R.L. Thompson, 1995, *MIS Quarterly*, 19 (2), p.217 (<http://dx.doi.org/10.2307/249689>)

applications in accountancy will be taken from the literature review and used in the interviews. The focus of the research will lie on the task-technology Fit and the precursors of utilization. Utilization itself cannot be tested so this variable will be slightly altered as the perceived (future) utilization. The performance impacts and feedback loops of the theoretical framework (Figure 2) will be left out of the scope of this case study.

### 2.5.1 Theories of fit

In Figure 2, the upper part of the framework shows the theories of fit, which belongs to the Task-Technology Fit focused research. Goodhue and Thompson (1995) explain that the theories of fit depict that performance can be influenced by how well technology can support the requirements of a task.

*Task characteristics:* A task is defined as the action that an individual performs which results in certain inputs being turned into output. The task characteristics that are of interest for this framework are those that might make an individual rely more heavily on aspects of IT.

*Individual characteristics:* Individuals are those who use technology as a way to assist them in performing their tasks. An individual's characteristics influence whether they can utilize a technology with ease. According to Goodhue and Thompson (1995), these characteristics are training, computer experience and motivation.

*Technology characteristics:* Technology is described as a tool that can be used by individuals to perform their tasks, which in IS research refers to the computer system and user support services.

*Task-Technology Fit (TTF):* TTF can be explained as “the correspondence between task requirements, individual abilities, and the functionality of the technology” (Goodhue & Thompson, 1995). TTF is influenced by the way the task, technology and individual interact with each other.

### 2.5.2 Theories of attitudes and behaviour

The lower part of the framework in Figure 2 shows the theories of attitudes and behaviour. According to Thompson and Goodhue (1995), the theories of attitudes and

behaviour show that the users' attitude regarding a system is influenced by the aspects of the technology. Furthermore, the users' attitude along with the precursors of utilization, which are shown in Figure 2, can lead to the user having the intention to utilize the system. These precursors of utilization are social norms, habit, expected consequences of utilization (beliefs), affect towards using and facilitating conditions.

*Social norms:* Social norms can be defined as the “informal rules that govern behaviour in groups and societies” (Bicchieri et al., 2023).

*Habits:* Habits are described as “a fixed way of thinking, willing or feeling acquired through previous repetition of a mental experience” (Andrews, 1903).

*Expected consequences of utilization (Beliefs):* Fishbein and Ajzen (1975, in Hartwick & Barki, 1994) explain that “beliefs link an object or behaviour to some attribute, characteristic or outcome.”

*Affect towards use:* Hartwick and Barki (1994) explain that affect towards use stems from attitude and is described as “the extent to which he or she feels the system is evaluatively good or bad.”

*Facilitating conditions:* Facilitating conditions are referred to as “the degree to which an individual believes that an organizational and technical infrastructure exists to support use of the system” (Park et al., 2011).

### **3 Methodology**

This chapter outlines the execution of the research by describing the qualitative research design that will be followed for this research. This qualitative research design will consist of a literature review and a case study. In this chapter, the sampling, data collection, data analysis and the reliability and validity of this research will be discussed.

#### **3.1 Research design**

As stated, the literature review provides input for the interview questions that will be used for the case study. As this research looks to determine what influences the willingness of accountants to adopt AI, it is important to study this in a natural setting to not manipulate any variables. This is why a case study is a good method for this research (Reich & Benbasat, 2000). The case study also allows for how and why questions to be asked, which leads to a deeper understanding of the case (Yin, 2018).

To collect the data, semi-structured interviews are conducted. As qualitative research can be used to build theory through the discovery of patterns in the qualitative data that has been gathered (Fossey et al., 2002), qualitative research is a suitable approach for this thesis.

Through a qualitative research design, the research process can be flexible and choices made can be changed throughout the process when new information arises. When new information arises, questions can be made more specific leading to richer information being gathered throughout the process (Fossey et al., 2002). This will be done by first conducting a pilot interview. By doing so it can be tested whether the questions that have been decided on are clear for the interviewee and whether they need to be altered.

##### **3.1.1 Sampling**

This case study has been conducted within the internship company Govers Accountants/Adviseurs. Govers Accountants/Adviseurs is a company that focuses on accountancy, taxation, and business consulting. Their customers are small and medium enterprises that are located within the Brainport region. In terms of accountancy, Govers Accountants/ Adviseurs has split this into two departments: the audit practice and the



compilation practice. Govers Accountants/Adviseurs has not yet implemented AI, however management is looking at possibilities.

This case covers the Accountants from Govers Accountants and Adviseurs and the potential they perceive AI has in accounting tasks and their willingness to use AI. For this case study 11 semi-structured interviews were held. Of these interviews, one was a pilot interview that was held in April. For this interview convenience sampling has been utilized.

Furthermore, as for the other 10 interviews, quota sampling has been utilized. The quota sampling was done because the accountants from Govers Accountants/ Adviseurs are divided into two departments: audit practice and compilation practice. For this research, 5 accountants were selected from each of the departments.

Because the thesis is held as an internship at Govers Accountants/Adviseurs, accountants from the company were selected and directly asked to participate in the interviews according to the invitation letter (Appendix A in English, Appendix B in Dutch). Table 4 shows the interviews that were held, the interviews took between 20 and 50 minutes.

Table 4. Interviews

<b>Interview participant</b>	<b>Department</b>	<b>Years of experience</b>	<b>Interview length</b>	<b>Interview date</b>
<b>P1</b>	Audit practice	9-10	50min	05-04-2024
<b>P2</b>	Compilation practice	3-4	26min	03-06-2024
<b>P3</b>	Audit practice	7-8	20min	04-06-2024
<b>P4</b>	Compilation practice	11-12	30min	06-06-2024
<b>P5</b>	Compilation practice	5-6	23min	06-06-2024
<b>P6</b>	Compilation practice	19-20	36min	11-06-2024
<b>P7</b>	Audit practice	9-10	32min	11-06-2024
<b>P8</b>	Compilation practice	<1	22min	11-06-2024
<b>P9</b>	Audit practice	5-6	30min	14-06-2024
<b>P10</b>	Audit practice	9-10	48min	18-06-2024
<b>P11</b>	Audit practice	3-4	23min	09-07-2024

### 3.1.2 Data collection

The semi-structured interviews were held non-digital (in person). The interviews are audio-recorded. To ensure informed consent, the interviewee is asked for permission to record the interview before the recording starts, and after the interview is done this permission is asked again. Furthermore, it is asked after the interview whether the interviewee is comfortable sharing all the information that has been disclosed during the interview. If not, the specific information is not processed in the data analysis.

The questions that are asked during the interview are according to the interview form (Appendix E in English, Appendix F in Dutch). Besides the interview form, follow-up questions are asked when a certain topic is not clear to the interviewer.

### 3.1.3 Data analysis method

The qualitative data collected from the interviews is collected in the form of an audio file. First of all, the audio file is transcribed into text. After this the Gioia method was used to analyse the data. In contrast to traditional methods of analysis, by using the Gioia method the researcher can look beyond construct elaboration and discover relevant concepts that will lead to a better use of the potential of the gathered data (Gioia, 2013).

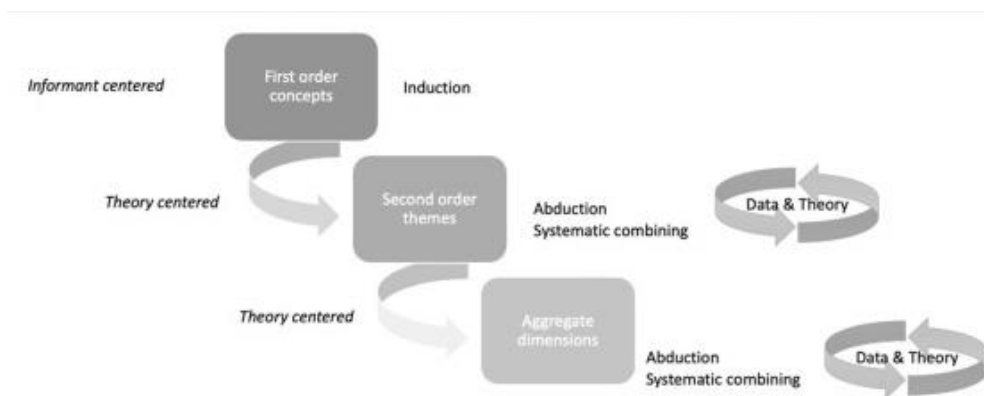


Figure 3. The process of developing a data structure<sup>3</sup>

This method, visualized in Figure 3, consists of 3 iterations of coding of the data to allocate 1<sup>st</sup> order concepts by open coding, 2<sup>nd</sup> order themes by axial coding and

<sup>3</sup> From "Using the Gioia methodology in international business and entrepreneurship research", by D. Gioia & G. Magnani, 2023, *International Business Review*, 16(1), p18 (<https://doi.org/10.1177/1094428112452151>)

aggregate dimensions by selective coding (Gioia & Magnani, 2023). This leads to a data structure that visualizes these steps and their outcomes.

### **3.2 Research ethics**

Several precautions have been taken to make sure that the ethics of this research are maintained, which are also mentioned in more detail in the research data management plan in Appendix I. Primarily, the participant was contacted by email to ask whether they want to participate in this study and to offer informed consent.

The consent to participate in this study was given via email and was reconfirmed at the start of the interview. Second, permission to record the interview for transcribing was asked at the beginning of the interview and consent was reaffirmed at the end of the interview, this included making sure that all information that has been discussed can be disclosed or if something needs to be cut out of the interview. Any participant-identifying information has been deleted from the transcripts to maintain anonymity and any statements or examples used in this research have been anonymized.

### **3.3 Use of Artificial Intelligence**

As stated by Tilburg University (n.d.) the use of tools such as AI is not prohibited, as long as one is transparent in their use. For this thesis, some forms of AI have been used. First, two tools have been used to help with language. As the writer's native language is not English these tools were used to help with translating, finding synonyms and paraphrasing of some of the text. The tool that was used for translation purposes is DeepL and the tool that has been used for paraphrasing purposes is Quillbot.

Second, the University of Turku offers an AI tool that helps with the transcribing of audio files. By using the AI tool provided by the university the recordings are not saved somewhere externally and the transcribed text will also automatically be deleted after a week making sure that the transcribing of the interviews does not come with any implications regarding privacy (University of Turku, n.d.). After using this tool, the transcribed text is compared to the audio to identify who said what and to correct any possible mistakes made by the AI tool.

### **3.4 Evaluation of research quality**

The credibility of this research is ensured by having interviews with experts in the field of accountancy as well as a literature review beforehand. Additionally, the interviewer made sure that the questions that were used during the interview were precise and comprehensive to encourage accurate and relevant responses. The interviewer also summarized the interviewee's responses throughout the interviews to ensure that information was correctly interpreted.

In terms of transferability, this research consisted of a case study that was conducted within Govers Accountants/Advisers by interviewing X employees of the audit- and compilation practices. Because this research only encompasses one accountancy firm, the results may not apply to other accountancy firms. Still, the results of this research can offer insightful information for future studies.

The validity of this research stems from the data collection and analysis. The data that has been collected in the semi-structured interviews has been analysed using the Gioia method and comparing the results to the literature review. A contribution to this validity has been made by participating in the courses of TJSRM (Research Methods) and Academic Writing during the period of January until April at Turku School of Economics. During these courses, numerous peer reviews and discussions have taken place, including feedback from the lecturers, for which dependability was an important consideration.

Lastly, regarding confirmability, the researcher makes every effort to avoid bias and to accurately describe the steps taken during the research process. Furthermore, to ensure confirmability quotations from the interviews that were used in the thesis have been translated as directly as possible to ensure that the meaning of the information is not lost.

## 4 Results

In this chapter, the results of the case study are presented. Using the Gioia method for the analysis of the data, a data structure has been visualized in appendix G.

### 4.1 Perceptions of Task-Technology Fit

#### 4.1.1 Task characteristics

The task characteristics are discussed during the interviews. During interview 1 the participant explained that within the organisation accountancy tasks are divided over two departments, namely the compilation- and audit practice. The participant explained that in the compilation department, the accountants perform tasks such as making the financial statement, filing taxes, answering financial questions and helping with the deposit of the financial statement.

The first interview participant continued to explain that the audit practice, audits the financial statements of organisations that have over 25 million in earnings. When auditing the financial statement, processes in the organisation are also looked at and interviews are held with people within the organisation to ensure that the processes are followed correctly.

The interview participants explain that accountancy is data-reliant as well as reliant on their professional judgement. When it comes to data reliance, participant 3 states that this is indeed due to all the financial data that they receive from the organisations.

P3: “Naturally in the auditing practice we often work with very big amounts of data. Often with all of the client’s ledger transactions. Where all financial transactions are recorded.”

Regarding the subjectivity of their work, valuations of items are a big part of this as explained by participant 7.

P7: “Because in the financial statements, there are just a lot of items and disclosures. And that’s all, valuations of certain items, there’s a lot of subjectivity in there.”

Participant 9 also explained that the difficulty lies within specific situations that are not clearly defined within laws and regulations, as these situations require an accountant’s knowledge and experience. Furthermore, participant 1 mentioned that the subjectivity of

the accountancy tasks also comes from materiality, as this can be different based on the customer's organisation and the stakeholders involved.

Participant 1, explained that some accounting tasks can be very time-consuming. They explained that to check the financial statements, the accountants have to go through a huge checklist based on laws and regulations, "I don't have to explain to you, that if you have to go through all of this, it takes quite some time." Participant 8 also explains that the accountancy work also contains some relatively easy tasks such as loading the customer records in the systems to compile it into a balance sheet.

#### 4.1.2 Individual characteristics

The narrative touched upon individual characteristics as well. When asked whether the employees have a good understanding of what AI entails, some of the participants indicated that they indeed had a clear understanding of AI's capabilities, like participant 2 who stated that AI can automate the thought process behind a task. Others stated that they were not entirely certain what AI could do or what it is exactly.

P1: "For me, it's still a bit unclear of, when do we really call it AI?"

Both participants 9 and 5 have similar thoughts on this as they share that it is not exactly clear to most accountants what AI can do, which leaves a lot of accountants quite sceptical about the technology. The accountants being sceptical about the use of AI fits right into the existing stereotype that surrounds accountants regarding technology acceptance. Participant 6 explains that this stereotype of risk aversion is also true in practice.

Participant 6: "They are not looking. And certainly accountants. Because accountants are a certain blood group or at least character."

Interviewer: "Yes. The character is different. Often very risk-averse."

Participant 6: "Yes. Grey mice in the past. Not innovative."

Participant 8 adds to this by explaining "That's usually true, you kind of wait and see at first, so to speak." According to Participant 9, this was visible within the organisation when they implemented a new digital tool about three years ago, which is still not accepted by everyone within the organisation.

However, participants also note that this stereotype may not apply to the younger generation of accountants. Participant 3 explained that they would categorise themselves as an early adopter, saying that they find it interesting to explore such new developments. Participant 8 even explained that this divide between old and young might not always be the case. They stated that in the compilation practice, it is management that is more likely to want to adopt AI compared to direct colleagues. Most participants agreed that age is an important variable at play here. The participants describe the organisation as young. According to participant 9, people see the organisation as young due to the average employee within the organisation being 33-34 years old. Participant 2 explains that the rejuvenation in the organisation that led to Govers being a young group has also had a positive impact on the response that the employees have to change. Participant 9 explains that with past implementations of technology, the assistants were the first to start using it, but as the accountants were lagging in the acceptance, this sometimes led to slight problems.

P9: “No, and you see, especially the first year, then you saw assistants who did, use it. They thought it was all nice and then you often have an assignment leader who reviews the work and you have an accountant who actually has to review it as well, but you just saw that some accountants didn't even have it, so they couldn't see anything in Datasnipper so they then notice that some people, they don't want to give in to that.”

Participant 7 explains that he expects something similar to happen to the implementation of AI, where the younger people who are performing the work, such as making the financial statement, are the ones who will use AI the most compared to the employees who mostly review their work. Participant 6 adds to this and explains that the older the colleagues get, the more difficult it will be to get them to accept AI. Similarly, Participant 3 states that he does not see the people who have worked in this field for over 20 years, who sometimes struggle with certain functions in Excel, picking up AI. Participant 7 adds to this stating that perhaps those are the colleagues that perhaps do not need AI as much in their work anyway.

In the interviews the participants also mention this lack of IT skills however, they frame this as part of the stereotype that surrounds accountants.

P2: “I don't know to what extent you've noticed, most accountants are not very good with IT-related issues”

Participant 11 explains how the adoption of AI can differ per accountant, Participant 3 adds that here there is a clear difference between the older and the younger generations. As the participant explains it is mostly the older generation of RAs (Register Accountants) that will most likely struggle to adopt AI.

P3: “Look we also have RAs who have been working here for 20, 30 years and then you have to explain Excel. They can't make a pivot table in Excel or anything like that. So I don't see them working with the AI very quickly.”

#### 4.1.3 Technology characteristics

When talking about technology characteristics, some participants noted the speed at which AI and technology in itself are advancing. Participant 5 even stated that with how quickly technology is developing it is hard to tell what technology you want to invest time in as a better one could be around the corner.

P5: “It goes so fast and that's the tricky thing. Is this what you have to get in on, or indeed something else will come along in five years, which could be much more interesting.”

Not only the speed of development of technologies was mentioned, but AI's ability to quickly find patterns in data was also mentioned by participant 3. Something else that jumped out of the interviews is the correctness of current AI algorithms. Multiple participants noted that current AI algorithms are quite often giving incorrect answers. Participant 2 stated that when asking about the financial statement guidelines it does not know how to answer those questions or the AI does not know where it needs to look in the legislation.

Participant 4 adds that the problem lies more in the fact that current AI tools will not always adhere to the questions you ask of them.

P4: “If you just take ChatGPT as an example, if you now ask it to make summaries, for example, of a report or of an agreement, just name something, because sometimes they get big funding agreements, you could say, well, ChatGPT make a good summary of this, then you just see that ChatGPT will still just make things up, which is not quoted verbatim in it at all.”



Participant 2 further explains that it is important for the AI to be correct when you want to implement it within the accountancy field, stating that “It should not be that it still makes a lot of mistakes, because then people will most likely opt out immediately.”

Furthermore, participant 6 explains that for AI to be correct it should be based on the right sources.

P6: “As an office or as a tax practice we need our sources. That if an assistant is saying something, that is correct. An AI assistant that says something just because it finds something on the internet and deems it most likely, we cannot work with that.”

Because of this need for correct sources, participant 8 explains that the AI should be a closed system.

#### 4.1.4 Task-technology Fit

In regards to task-technology Fit, insights from participants led to a multifaceted view. Overall most participants see many ways for AI to take shape in accountancy. However, while some participants see AI automating tasks like sampling, creating financial statements, creating process- and cashflow descriptions, creating certain texts in the financial statement or even becoming a virtual assistant. Participant 9 adds that they think that in the compilation practice, it might happen quicker that AI takes over tasks compared to the audit practice.

P9: “So perhaps in compilation that might happen even sooner that AI will take over more, like compiling the financial statements, I think a lot of it can be done by AI eventually.”

Others are a bit more sceptical about AI taking over their tasks. They state that AI will not take over tasks, but instead, AI becomes a tool for the accountant. When it comes to specific ways to apply AI as a tool, participant 2 mentions that it can also be used towards clients by integrating AI into the dashboards. For the accountants AI could be used to review the assistants, a chatbot for professional questions for the internal organisation as well as towards the clients, giving suggestions on standard risks or advice based on the financial statement, flagging unusual transactions and checking financial statements.

Though there are so many possibilities for AI, the participants are also a bit wary about the use of AI, especially when it comes to its reliability. Participant 4 explains that the

way AI is currently, it is just not reliable enough for the accountants to use it for certain purposes, stating that “reliability is especially important to accountants because they are quite risk mitigating.”

Furthermore, multiple participants talk about the importance of ease of use of the tool stating that it should be easy to set up and easy to work with to make accountants use AI.

## **4.2 Precursors for utilizing AI in accountancy**

### **4.2.1 Expected consequences of utilization**

Regarding expected consequences, participants had some positive as well as negative views. On the positive side of things, participants expect AI to bring better quality and efficiency. Participant 4 recognizes this potential, although they do argue that this will take time.

P4: “And then, of course, you are doing things double but I think that ultimately, you are raising your quality. Whether you will immediately have increased efficiency, no, not yet.”

Multiple participants state that accountants are currently consumed by work that can be described as the ‘basic necessity’ for the clients that they serve, which is due to shortages in the labour market. They explain that if AI could take over making the financial statement, they could focus on what these financial statements tell them about the state of the company. This would allow them to help their clients in a lot of areas. Participant 5 even adds “Maybe we will then have a consultancy branch in addition to the three branches we have now, which is something you already see in the larger firms.”

Participants 6, 7 and 9 even see how this could make their work more fun, they state that when AI is implemented this could lead to more interesting and fun work. Participant 7 explains that “because precisely those more complex things are what makes the work, at least to me, more fun than these standard things.” Participant 9 even states that “I hope that at least all the simple boring work, is actually kind of taken over by the AI. Seeing what current tools are able to do, that should be possible.”

On the other hand, participants also have some worries in regards to utilizing AI. Participants state that the implementation process when utilizing AI can be difficult as a lot of things can go wrong according to participant 6. Participant 9 adds that for the accountants it is important that you start small. If you do not start small people will quickly lose interest.

Explainability is also a worry for the accountants. As participant 3 states, it is part of accountancy to explain your reasoning as subjectivity and professional judgment still make up part of the financial statement. With AI it is not always possible to explain its reasoning which can become a problem.

P3: “So if you've now done something yourself you can say yes I did this this and this way based on that and that standard and if you, I think it's often the idea of AI is that you don't know exactly how they arrive at a particular outcome. They always call it a bit of a black box. Something goes in, something comes out. Only we have to explain precisely that black box precisely the process of how you arrive at something is always very important to us that you can explain that. And I think that's where the problems lie.”

As for dependability, Participant 8 explains that one should be careful that someone does not become completely dependent on the AI, only looking towards the AI when they have questions instead of going to colleagues.

Participant 5 adds that the dependability of an AI can also differ depending on whether the AI is developed in-house or by a third party. This is because when an AI is developed in-house it is clearer what it does, how it works and what happens to the data that is fed to the AI.

When it comes to the accountant's workload, participants are torn. On one hand, participant 5 states that they can imagine that some colleagues are less likely to adopt AI out of fear that they will get less work. Though, on the other hand, the participant also explains that as everyone is always very busy, they doubt that this leads to problems. Participants 6, 9 and 10 see a brighter side if the workload gets reduced. Participant 10 states that there is currently a shortage of accountants in the labour market and explains that it makes organisations more eager to work with technologies such as AI. Participant 6 explains that by deploying AI for certain tasks you could combat the current shortages in the labour market. Participant 9 even explains “Maybe you would not so much start trusting it, but you do have a shortage of people. Suppose

that becomes more so in the future, then you will have to let AI do more for you. Otherwise, you won't be able to cope and then companies will be without accountants.”

Participant 3 is more worried about the people not accepting AI, stating that he hopes “That we do not just do what we always did to be on the safe side and then do that AI as an additional tooling as well.”

#### 4.2.2 Affect towards using

Although multiple participants think that bringing AI into the workplace can bring its advantages, as participant 6 mentions that they think automating work will be a good development for the accountancy sector. Others mention that it is important that they can test the AI, making sure that it is doing what it is supposed to be doing. As participant 5 explains:

P5: What you get now also, is of course the moment you use records or third-party substantiation, call it simply a valuation report, where that value is included in those financial statements for valuation. Well, a valuation report is made by a broker who, if it is good, also meets his conditions. And well, you then have to go and establish that. So well, the moment that instead of a broker doing a valuation, you have an AI doing something, then of course you have to be able to establish the reliability and operation of that system.

Participants also state that for them to use AI, the AI must show what added value it brings to the table. Once that added value becomes clear, you will be able to get the accountants to utilize the AI.

P7: “ So I think that the moment there are people who take the lead and also come up with a concrete, good business case, and if you then present it here to the people who are not in charge, then they do listen.”

That this added value needs to become clear also has to do with the expectation gap. According to participant 5, the accountants must understand what it does, to keep the expectation gap between the accountant and the AI as small as possible.

#### 4.2.3 Social norms

Looking at social norms, participant 6 explains that this is barely noticeable because the accountants are still very eager to understand the profession. Participant 2 even says that he does not feel any social pressure at all.

P2: “I think that pressure lies on management more than on employees.”

On the other hand, participants state that even though this social pressure is not as noticeable now, this social pressure will most likely come from the side of the customers where participant 5 explains that this has to do with money.

P5: “The moment it can be shown that using such a system makes it cheaper for the customer, then I can imagine that the customer will say listen, you should do something with it.”

Participant 6 adds to this that this social pressure will only be present once the entire market changes, as this change would then lead to customer needs. Lastly, participant 4 even states that it may very well be possible that customers are already asking if the organisation is using AI or planning to do so.

Another possible source of social pressure, according to the participants, is the market itself. As participants 4 and 1 state due to the hype surrounding AI, you could say that this social pressure is already here. To this participant 10 adds that social pressure will be noticeable by the bigger organisation first, as of now no one expects the smaller organisations to invest in AI yet.

P10: “We are not expected as a party within the market, to apply AI in our audits, because that is just very difficult...”

#### 4.2.4 Habit

Regarding habits, participant 7 explained that what you see in the organisation is that even with current applications, often half of the functionalities that it has are not used. This is because people forget they exist or do not remember how to use them. The participant explained that this could also happen when AI is introduced, which is why they explained “That you have to develop some kind of obligation or something. That you have to impose that people do start using it for certain concrete things.” The participant further explained that if this obligation does not exist it is likely that people will stop using it at some point.

Furthermore, participant 9 explains that the use of AI will lead to the accountants possibly having to rethink how they should perform their tasks, as AI could lead to a change in the existing processes. Participant 3 adds that for the audit practice, this could very well mean that we divert from sampling to more integral audits instead.

#### 4.2.5 Facilitating conditions

Regarding facilitating conditions, participants brought up the organisation's strategy during the interviews, explaining that a company's strategy influences what they will most likely use AI for and the timing at which they will implement it. Participant 6 explained that for Govers the company's strategy lies more in the connection with customers and thus it will be less likely for the organisation to implement something that takes over this communication between the accountant and the customer.

Participant 7 adds that the strategy of the organisation ties into the organisational change readiness, as it is the company's strategy to not be leading in technological advancements.

Regarding organisational change readiness, one participant mentioned that this ties closely with the resources the organisation has available and the added value that AI can bring to the organisation. Others mention that in general the organisation waits and sees what the market does and adapts what the market seems to find useful.

P9: "Then you wait for something that's already somewhat pre-made from the market, so you can have it made Govers specific."

One participant mentioned that if the organisation indeed wants to purchase an existing AI of the market, they hope that there will be multiple vendors then so that you do not become dependent on one specific third party.

To keep up to date with what might be useful, participants explain that when it comes to AI implementation and technological advancements, it is important to get people together who would be willing to look into things and have them start pioneering for the organisation.

P4: "So then my concrete answer would actually be to, appoint a group of people who do want to start with it, who also have a feel for it. Within the different departments, so within compilation, within control, within the tax corner, so to speak. And give those access to a certain AI tool. As for the question of which one, you would have to do some research. Which one is the most appropriate within our organisation? And just get to work with that group there in concrete terms. Just go pioneering."

Participant 7 added that since the organisation compared to the rest of the market is rather small it could be wise to see if there could be a possibility of cooperation with other firms.

Although participants state that the organisation would most likely adopt an existing AI, some state that due to complications of the implementation such as information security and explainability, it might be that the AI should be developed by the company itself to make implementation a success. Participant 8 stated that for the organisation to work with AI it would have to be quite customised. Participant 6 explained that depending on the kind of AI, developing it internally could be doable if it is in the form of a virtual assistant.

All of this requires resources, participant 4 stated that when you want to start implementing a technology it costs a lot of money, time and energy to get it right, with a lot of missteps in the beginning. But the participant also stated that at some point you have to start otherwise, you will be stuck at the drawing board. Participants 1 and 2 both stated that AI will lead to high costs in human and monetary capacity, something that a firm of this size does not have.

Something that the participants could all agree on was the need for training. Although some stated that AI is represented during the studies. Participant 7 mentioned that during their studies process mining was a well-conversed subject. Participant 2 added that the use of AI is even accepted in his studies and that during the studies information security and AI are mentioned as well. Participant 11 even stated that AI is mentioned during the RA (register accountant) post-master.

Participants realize that for AI to be implemented training will be necessary and the way the training will be composed will have a significant impact. Participant 2 explained that it all comes down to practical examples.

P2: "I think it's best to prepare. I think that it comes down to the person who is going to explain it anyway. Where they start at literally presenting a practical case. Where they click through a file themselves. These are normal activities, you recognise everyone. But then it goes into effect like this. And that you can also show it visually right away."

Participant 9 also stated that training on how to use AI will be important as it will impact the way we work in the sense that we cannot look back to how we did it last year.

Apart from training the participants explain that for AI to be implemented, it is important that there are guidelines available.

P9: “I think if we want to go use that. There has to be some guidelines for it or examples, because it's still a bit of a bit of a blur how? How can we deploy it?”

Participant 3 adds that there should be careful consideration of how AI will fit the audit methodology and that a manual should be made available for this in the office.

Participant 6 goes even further stating that not only should there be guidelines, but the organisation should also have a policy regarding the use of AI.

Aside from making their guidelines and policies on the use of AI, participants also stated the importance of current laws and regulations in the decision to implement AI. As accountants in the Netherlands are to report to the ‘Autoriteit Financiële Markten’ (AFM), there are certain laws and regulations that must be adhered to. Multiple participants explain that it becomes difficult to implement AI when the authority has not made their viewpoint clear, as participant 7 explained current laws and regulations are not made to include technologies like AI. This is important as the participants state that explainability is an important part of their commitment to the authority.

Furthermore, participant 6 states that as of now it is not possible to have AI take over certain tasks because the Dutch taxonomy is not as advanced as that of some of our neighbouring countries, which leads to uncertainty in the correctness of the data that is necessary to make the financial statement, which AI cannot check.

One of the obstacles that was very clear to most participants was information security. Especially when third-party tools come into play. As participant 4 explained, “What will happen to the data that you put into it of course?” Participant 5 also mentioned that in the case of accountancy, we are talking about company data from customers that you are sending onto the web. Another participant named the possibility of the data even being sold.

Participant 9: Where is it going? Yes, that's all pretty vague of course, because you're going to end up putting all confidential information in there and who knows, maybe it'll all be public soon.

Interviewer: Yes, I was going to say. That is often difficult with the existing tools. You don't know exactly what's behind it. Or who is behind it?

Participant 9: Exactly it might even all be a revenue model. All the information that comes in.



Whilst most participants are worried about the data that you give to the AI model one participant named a different side of information security, namely availability.

Participant 9 explained that if an AI tool is used a lot, especially in the case of AI buffering the shortages of the labour market, it could become quite an issue if the AI tool is suddenly down.

## 5 Discussion

Based on the analysis and the results that are presented in chapter 4, this chapter focus is interpreting the meaning of the results and how they compare to existing literature. In this chapter the research question will be answered, limitations of the thesis will be discussed and suggestions for future research will be provided. The findings of this research have been summarized in figure 4 and 5, according to the full data structure in Appendix G. How these constructs are supported by this study and the existing literature can be seen in Appendix H.

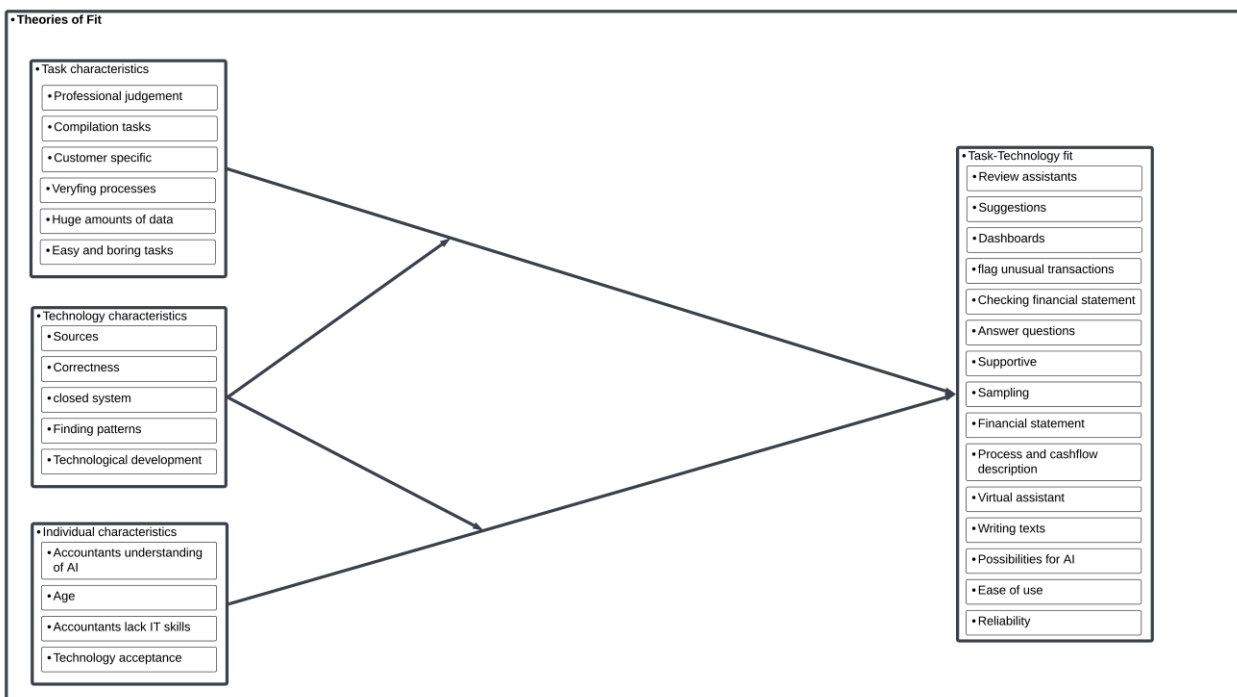


Figure 4. Theories of Fit

The main question can be divided into 2 parts, namely the accountants' perceptions of the Task-technology Fit and how this influences their willingness to utilize the AI. This corresponds to the division in the Task-Technology framework (Theories of Fit & Theories of Attitudes and Behavior). Looking into the first part of the research question; perceptions of accountants regarding the task-technology Fit, conform to existing literature, participants explain that the accountancy tasks are quite reliant on data as well as on professional judgement, as tasks can become client-specific due to materiality. The data-reliant tasks in accountancy are described as time-consuming and easy. When

it comes to individual characteristics, the participants' name age, understanding of AI, lack of IT skills and technology acceptance. The understanding of AI and lack of IT skills are somewhat similar to the constructs mentioned by Goodhue and Thompson (1995) however, age is not named by Goodhue and Thompson as an individual's characteristic, however other theories and frameworks such as TOE and UTAUT do see this as an important factor (Tornatzky and Fleischer, 1990; Venkatesh et al., 2003). According to theory age can play an important role in IS research as adoption is dependent on it (Hoon et al., 2013). In accordance with theory, the results state that characteristics of the technology are its correctness, its sources, its ability to find patterns in data, closed system and the speed of technological developments.

Regarding the task-technology Fit, there are quite a few tasks that AI could perform according to the participants, participants even stated tasks that were not in literature such as using AI in dashboards and having AI make process- and workflow descriptions. However, the participants state that there are some tasks AI can take over, whilst some tasks it can only support, mostly due to the reliability of the technology.

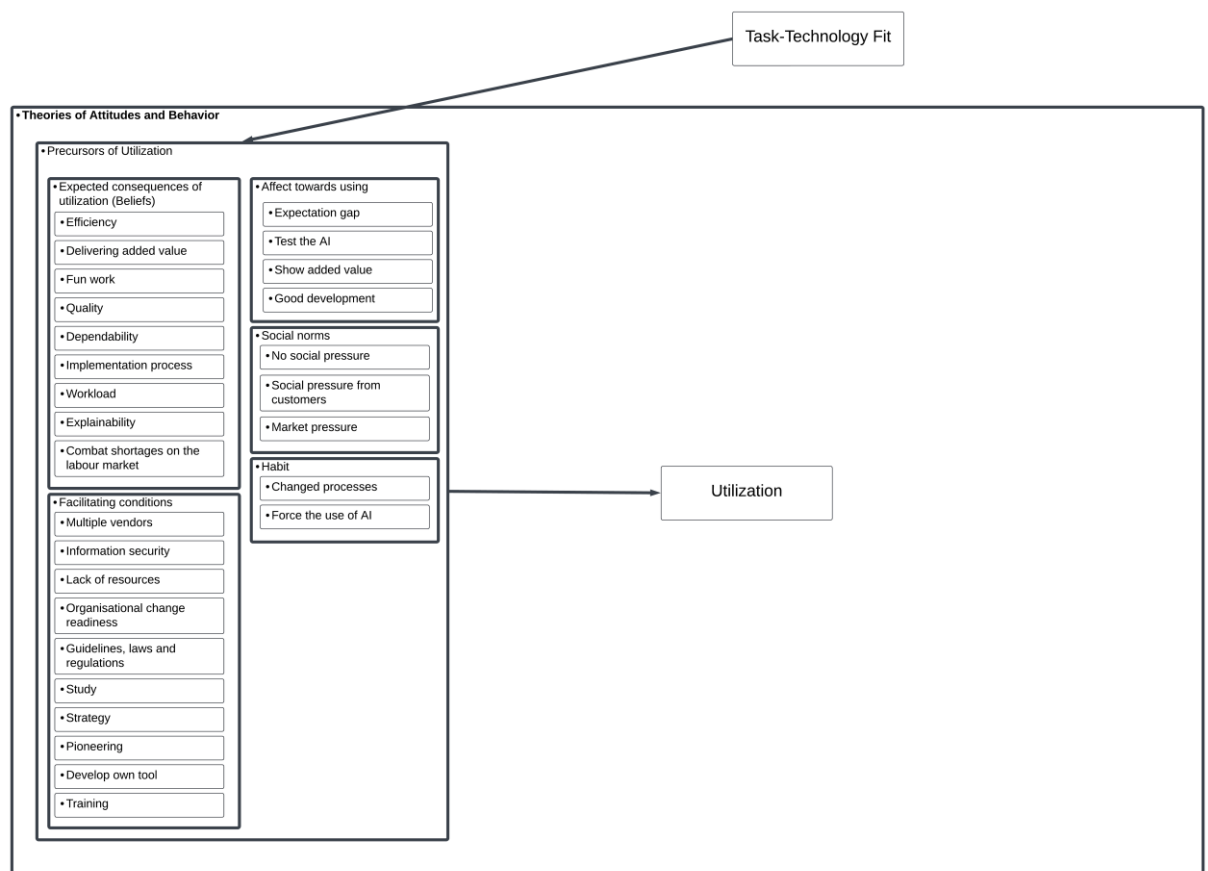


Figure 5. Theories of Attitudes and Behavior

For the second part of the research question, how the accountants' perception of AI influences their willingness to utilize it, we look at the precursors for utilizing AI; Expected consequences of utilization (beliefs), affect towards using, social norms, habit and facilitating conditions (Figure 5). People have positive as well as negative views when it comes to the expected consequences of utilizing AI, most of which are supported by literature. Positively accountants expect increased quality and efficiency, next to which they expect AI to take away easy and boring tasks leaving them with the fun work left and giving them room to deliver added value to customers through better or new services. Negatively speaking accountants note that AI is a blackbox and thus not always explainable, which does not work for their standards and obligations to the regulator. Furthermore, it needs to be made sure that people do not become dependent on AI. Something that participants had divided standpoints on is the workload and combatting shortages in the labour market. While some participants see AI as a possibility to free up the workload to do other, more meaningful tasks, others are scared that it will mean that there will be too little work for everyone to keep working. According to Ahmad (2024), the latter will not happen as the use of AI will lead to other tasks.

When it comes to affect towards using there is a drift between theory and practice. Glikson and Woolley (2020) state that an AI algorithm's dependability, transparency, tangibility, and immediate behaviour are what lead to cognitive trust in the technology. However, during this research participants state a need to test whether the AI is performing according to standards and that the AI needs to show what added value it can bring to the accountants, as this will help most in convincing them to utilize the AI.

Similarly, theory and practice seem to differ when it comes to social norms. , this social pressure should be very present as Patelli (2019) states that the utilization of AI is necessary to stay relevant as a business. During the analysis, it became clear that this social pressure is not noticeable to the accountants. They explain that it is forcing itself more on the bigger organisations.

The analysis for the facilitating conditions shows, in accordance with theory, the importance of resources, training, information security, guidelines, laws and regulations. However, the interviewees did add the importance of pioneering as an organisation or

in collaboration with others as well as the strategy of the organisation as important constructs.

## 5.1 Conclusion

This research has aimed to answer the research question *How do accountants perceive the potential of using AI in different accounting tasks and how does the context influence their willingness to utilize AI?* To do so the perception of the use of AI by accountants has been investigated by conducting a case study with the Task-Technology Fit framework at its base. Findings suggest that, regarding the perceptions of task-technology Fit, AI is capable of performing accounting tasks either completely on its own or being used as a tool to enhance the accountant. The accountants are positive regarding the use of AI as a tool for their tasks, whilst having AI take over tasks is still debatable with some accountants having a more positive stance than others.

Regarding the precursors for utilizing AI, findings suggest that although the use of AI can lead to benefits like increased quality, efficiency and delivering added value to clients, there are some worries with regards to AI that are currently stopping the risk-averse accountants from implementing such as the explainability and dependability of the AI. Findings suggest that due to the lack of clear guidelines, laws & regulations on the use of AI and a lack of knowledge on the abilities of AI, the accountants stay wary of what they can do with it, causing this need to test the AI. This is why training including visualizing the added value that AI can bring becomes so important.

## 5.2 Limitations

Although this research has contributed to the literature, the results of this study contain some limitations. First of all, the sample size. As this research is done based on one case, statistical generalisation, where “an inference is made about a population (or universe) based on empirical data collected from a sample from that universe” (Yin, 2018) is not possible. However analytical generalizations can and have been made. What this means is that although a generalization based on the sample towards the population cannot be made, this case strengthens the theoretical model of Goodhue and Thompson (1995).

Furthermore, there are limitations regarding the subjectivity and replicability of this research. Due to the nature of this research, the researcher is expected to interpret the interview transcripts, which can harm the subjectivity of the analysis and the semi-structured interviews that were used make it difficult to replicate the methodology on a one-to-one basis.

Additionally, there is a limitation regarding sampling. As the researcher was not that familiar with the employees of the organisation and chose to do a quota sampling of the two departments (audit and compliance), the managers of these departments were asked to bring forth possible interviewees. This could have led to a sampling bias as people who were most likely to be more interested in the topic were put forward.

### **5.3 Future research**

Based on the limitations, directions for future research can be derived. First, in order to make a generalisation towards the population more research should be done, perhaps in the form of a multiple case study.

As the interviewees mentioned, accountants are quite risk averse and due to that resistant to change, it could be interesting to see whether their view on the technology changes over time by doing a longer study in which you look at their perceptions over time by looking at this before implementation, during implementation and after a certain amount of time of working with the technology.

This research focussed on the accountants in general which is why accountants from both the audit and compilation practice were interviewed. Although this research did not focus on the differences between the two, as this was not in the scope, it was noticeable that the audit practice was starting to look into AI already (MindBridge, AI module in Datasnipper), while the compilation practice did not seem to do so. Future research could look into whether there is a difference between the accountants of the different practices and their willingness to utilize AI.

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## Appendices

### Appendix A. Invitation letter in English

In this appendix the English version of the invitation letter is presented, the Dutch version is presented in appendix B. The Dutch version of the invitation letter was sent to the interviewees. The English version is a direct translation of the Dutch invitation letter.

Dear [name],

My name is Laura van IJzendoorn, I started my graduation internship at Govers on May 13th for my master's degree in the perception of accountants on the implementation of Artificial Intelligence.

For my thesis I would like to schedule an interview with you as I am interested in your knowledge and insights. This interview will take a maximum of three quarters of an hour.

Please let me know if you would like to participate in an interview and when you are available.

Thank you in advance and I hope to hear from you soon.

Kind regards,

Laura van IJzendoorn

**Appendix B. Invitation letter in Dutch**

Beste [naam],

Mijn naam is Laura van IJendoorn, ik ben op 13 mei gestart bij Govers met mijn afstudeerstage voor mijn Master naar de perceptie van accountants over implementatie van Artificial Intelligence.

Graag zou ik voor mijn thesis een interview met u in willen plannen daar ik geïnteresseerd ben in uw kennis en inzichten. Dit interview zal maximaal driekwartier duren.

Ik hoor graag of u wilt deelnemen aan een interview en wanneer u hiervoor beschikbaar bent.

Bij voorbaat dank en ik hoop spoedig van u te horen.

Met vriendelijke groet,

Laura van IJendoorn

## **Appendix C. Interview form Pilot interview in English**

### **Introduction**

- Introducing myself
  - Purpose of research
  - Length of interview
  - Asking for permission to record the interview, all data will remain anonymous, and recordings will be deleted after the thesis.
    - o More focus on the interview
    - o Easier to work out afterwards.
1. Could you introduce yourself?

### **Task characteristics**

2. First of all could you tell me a bit more about what accountancy entails?

### **Individual characteristics/"subjective" TTF**

3. What are the tasks where you would yourself first start using AI, why?
4. Do you think you will be an early adopter, among the majority, or one of the last ones? - Why?

### **Affect toward using/Expected Consequences of Utilization (beliefs)**

5. What are your concerns regarding said AI adoption? What are or will be perceived challenges/obstacles you believe companies will face in regard to AI adoption?

### **Habit**

6. Does the use of AI challenge some of the existing professional norms and beliefs of good accounting practice; or personal working habits?

### **Performance impact**

7. Do you expect there to be notable gains or losses from the implementation of AI?

## **Appendix D. Interview form Pilot Interview in Dutch**

### **Introductie**

- Mijzelf voorstellen
  - Doel van het onderzoek
  - Tijdsduur interview
  - Vragen voor toestemming om het interview op te nemen, alle data blijven anoniem en opnames worden na de thesis verwijderd.
    - o Meer focus op het gesprek
    - o Makkelijker achteraf uitwerken
1. Kunt u uzelf kort voorstellen?

### **Kenmerken van de taak**

2. Kunt u me eerst iets meer vertellen over wat accountancy inhoudt?

### **Individuele kenmerken/"subjectieve" TTF**

3. Wat zijn de taken waarbij u zelf het eerst AI zou gaan gebruiken, waarom?
4. Denkt u dat u een vroege adopter zult zijn, bij de meerderheid, of een van de laatsten? - Waarom?

### **Effect op gebruik/Verwachte gevolgen van gebruik (overtuigingen)**

5. Wat zijn uw zorgen over de genoemde gebruik van AI? Wat zijn of worden volgens u de uitdagingen/obstakels waarmee bedrijven te maken zullen krijgen bij de invoering van AI?

### **Gewoonte**

6. Vormt het gebruik van AI een uitdaging voor sommige van de bestaande professionele normen en overtuigingen van goed boekhouden; of voor persoonlijke werkgewoonten?

### **Effect op prestaties**

7. Verwacht u opmerkelijke winst of verlies door de implementatie van AI?

## **Appendix E. Interview form in English**

In this appendix the English version of the interview form is presented, the Dutch version can be found in appendix F. The Dutch version of the interview form has been used in the interviews. Furthermore, some of the interview questions have been derived from the article of Collin Peace (2021).

### **Section A. Background information**

- Introducing myself
- Purpose of research
- Length of interview
- Asking for permission to record the interview, all data will remain anonymous, and recordings will be deleted after the thesis.
  - o More focus on the interview
  - o Easier to work out afterwards.

### **Section B. Interview questions**

#### Personal information

1. Can you briefly introduce yourself?
2. What is your job title?
3. How many years of work experience do you have as an accountant at Govers?
4. Composition practice: I heard that you are part of a team looking at opportunities for technology in accounting work? Can you briefly tell me more about this?
5. How familiar are you with Artificial Intelligence?
6. Can you tell me more about the work within the composition / audit practice?

### Characteristics of the task

7. Within the work you perform, do you think there could be a role for AI (Repetitive tasks/processes)?

8. What tasks will AI take over?

9. What tasks will AI support but not take over? Why?

10. Which tasks will remain entirely the responsibility of the accountant? Why?

If the interviewee indicates little understanding of AI, the examples below can be used:

Audit practice:

- Automate SRA checklist for audit financial statements.
- Chatbot to which you can ask questions about the laws and regulations you must comply with as an accountant.
- Automatic recognition of high-risk transactions

Composition practice:

- Chatbot to which you can ask questions about the laws and regulations you must comply with as an accountant.
- (using NLP) automatically retrieve information from files such as contracts, leases, employee agreements, invoices, etc.

### Individual characteristics / subjective TTF

11. What are tasks in which you yourself would first use AI? Why?

12. Do you think you will be an early adopter, among the majority, or one of the last? Why?

### Social norm

13. Is there pressure from customers, management, the field, etc., to implement AI?

14. Governs culture regarding digital technologies?

Impact on use/expected impact of use.

15. What are your concerns about the stated use of AI? What do you think are or will be the challenges/obstacles that firms will face in adopting AI?

16. Do you think there will be any concerns about accountants becoming too dependent on the technology?

Habits

17. Does the use of AI challenge some of the existing professional standards and beliefs of good accounting; or personal work habits?

Facilitating conditions

18. How can other accounting professionals like you best prepare for the coming technological changes?

19. How can this be facilitated/supported by the company?

Use

20. How will the role of the accountant change with the advent of AI?

21. What is your outlook for 10-15 years for the accounting profession given the technological advances currently being made? What are your expectations for the adoption of AI in accounting firms across the country?

Impact on performance

22. Do you expect notable gains or losses from implementation of AI?

**Section C. Closing**

- Are there things about AI in accounting that we did not discuss that you would like to share?
- Thank participant for time and participation. Thank participant for the valuable insights.
- Verify permission to record the interview, reiterate that data will be processed anonymously.



## **Appendix F. Interview form in Dutch**

In this appendix the Dutch version of the interview form is presented, the English version can be found in appendix E. The Dutch version of the interview form has been used in the interviews. Furthermore, some of the interview questions have been derived from the article of Collin Peace (2021).

### **Sectie A. Achtergrond informatie**

- Mijzelf voorstellen
- Doel van het onderzoek
- Tijdsduur interview
- Vragen voor toestemming om het interview op te nemen, alle data blijven anoniem en opnames worden na de thesis verwijderd.
  - o Meer focus op het gesprek
  - o Makkelijker achteraf uitwerken

### **Sectie B. Interview vragen**

#### Persoonlijke informatie

1. Kun u uzelf kort voorstellen?
2. Wat is uw functietitel?
3. Hoeveel jaar werkervaring heeft u als accountant bij Govers?
4. Samenstelpraktijk: Ik hoorde dat u onderdeel uitmaakt van een team wat kijkt naar mogelijkheden voor technologie in het accountancy werk? Kunt u mij hier kort iets meer over vertellen?
5. Hoe bekend bent u met Artificial Intelligence?
6. Kunt u mij iets meer uitleggen over de werkzaamheden binnen de samenstel/ audit praktijk?

#### Kenmerken van de taak

7. Denkt u dat er binnen het werk wat u uitvoert, een rol kan zijn voor AI?
8. Welke taken zal AI overnemen?
9. Welke taken zal AI ondersteunen maar niet overnemen? Waarom?
10. Welke taken blijven volledig verantwoordelijkheid van de accountant? Waarom?

Als de geïnterviewde aangeeft weinig verstand te hebben van AI kunnen onderstaande voorbeelden gebruikt worden:

Audit praktijk:

- Checklist van het SRA voor controle jaarrekeningen automatiseren
- Chatbot waaraan je vragen kan stellen over de wet- en regelgeving waar je je als accountant aan dient te houden
- Automatische herkenning van hoog risico transacties

Samenstelpraktijk:

- Chatbot waaraan je vragen kan stellen over de wet- en regelgeving waar je je als accountant aan dient te houden
- (Adhv NLP) automatisch informatie ophalen uit bestanden zoals contracten, huurovereenkomsten, werknemersovereenkomsten, facturen etc.

#### Individuele kenmerken/ subjectieve TTF

11. Wat zijn taken waarbij u zelf het eerst AI zou gaan gebruiken? Waarom?
12. Denkt u dat u een vroege adopter zult zijn, bij de meerderheid, of een van de laatsten? Waarom?

#### Sociale norm

13. Is er druk vanuit klanten, management, het werkveld etc., om AI te implementeren?
14. Govers cultuur omtrent digitale technologieën?

#### Effect op gebruik/ verwachte gevolgen van gebruik

15. Wat zijn uw zorgen over het genoemde gebruik van AI? Wat zijn of worden volgens u de uitdagingen/obstakels waarmee bedrijven te maken zullen krijgen bij de invoering van AI?
16. Denkt u dat er enige bezorgdheid zal bestaan over accountants die te afhankelijk worden van de technologie?

#### Gewoonten

17. Vormt het gebruik van AI een uitdaging voor sommige van de bestaande professionele normen en overtuigingen van goed boekhouden; of voor persoonlijke werkgewoonten?

#### Faciliterende voorwaarden

18. Hoe kunnen andere boekhoudprofessionals zoals u zich het beste voorbereiden op de komende technologische veranderingen?
19. Hoe kan dit worden gefaciliteerd/ondersteund door het bedrijf?

#### Gebruik

20. Hoe zal de rol van de accountant veranderen met de komst van AI?
21. Wat zijn uw vooruitzichten voor 10-15 jaar voor het accountantsberoep, gezien de technologische vooruitgang die momenteel wordt geboekt? Wat zijn uw verwachtingen voor de toepassing van AI in accountantskantoren in het hele land?

#### Effect op prestaties

22. Verwacht u opmerkelijke winst of verlies door implementatie van AI?

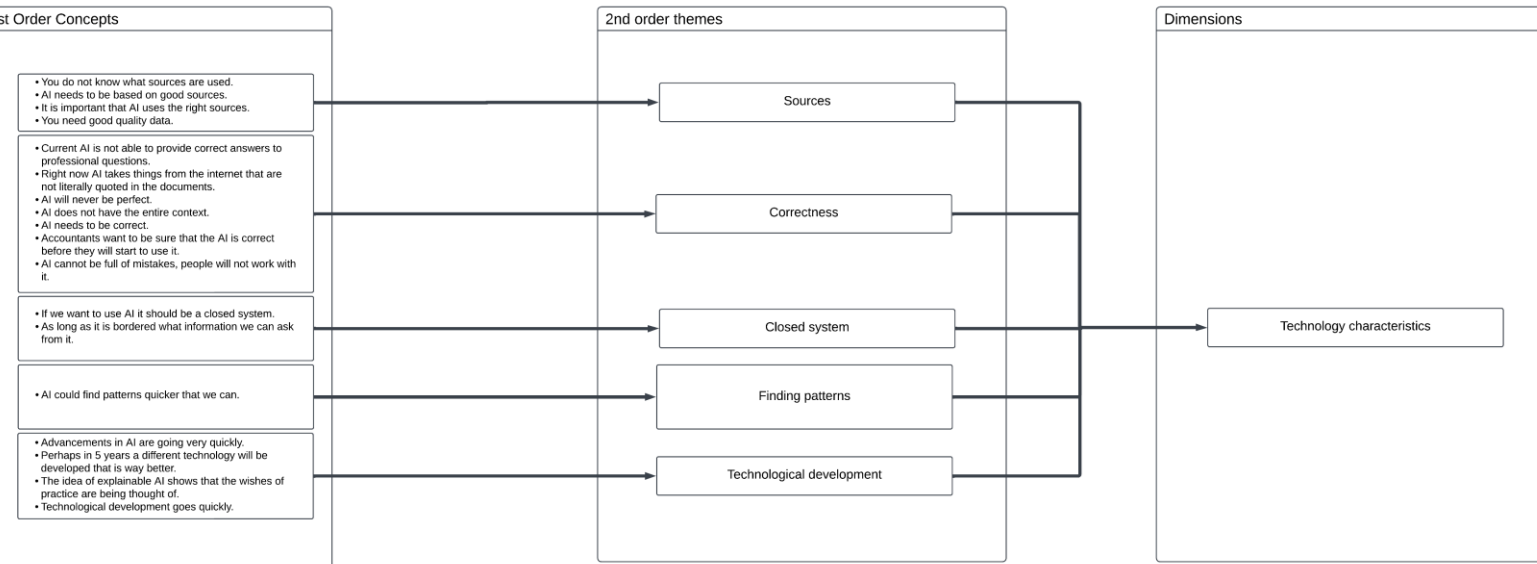
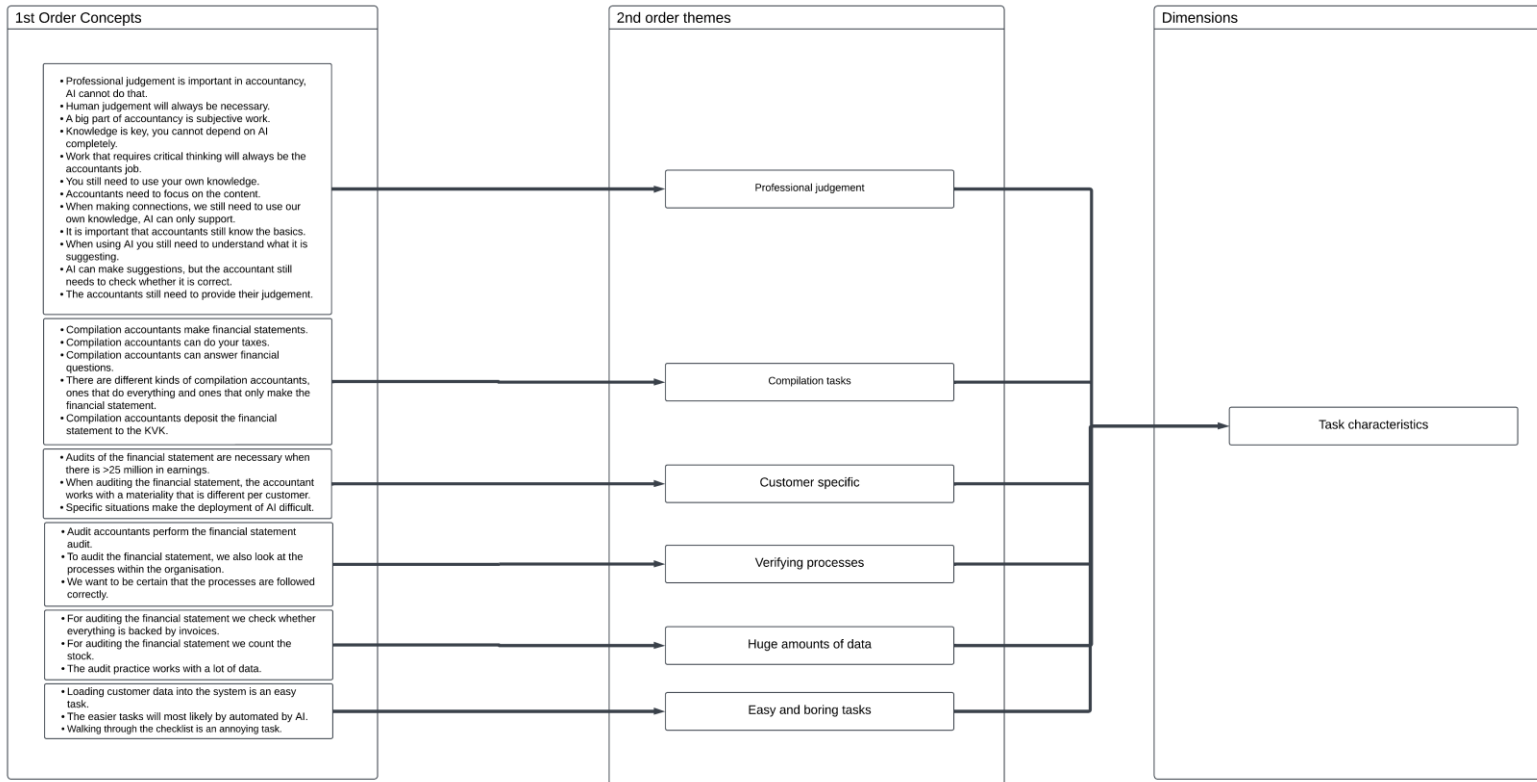
### **Sectie C. Afronding**

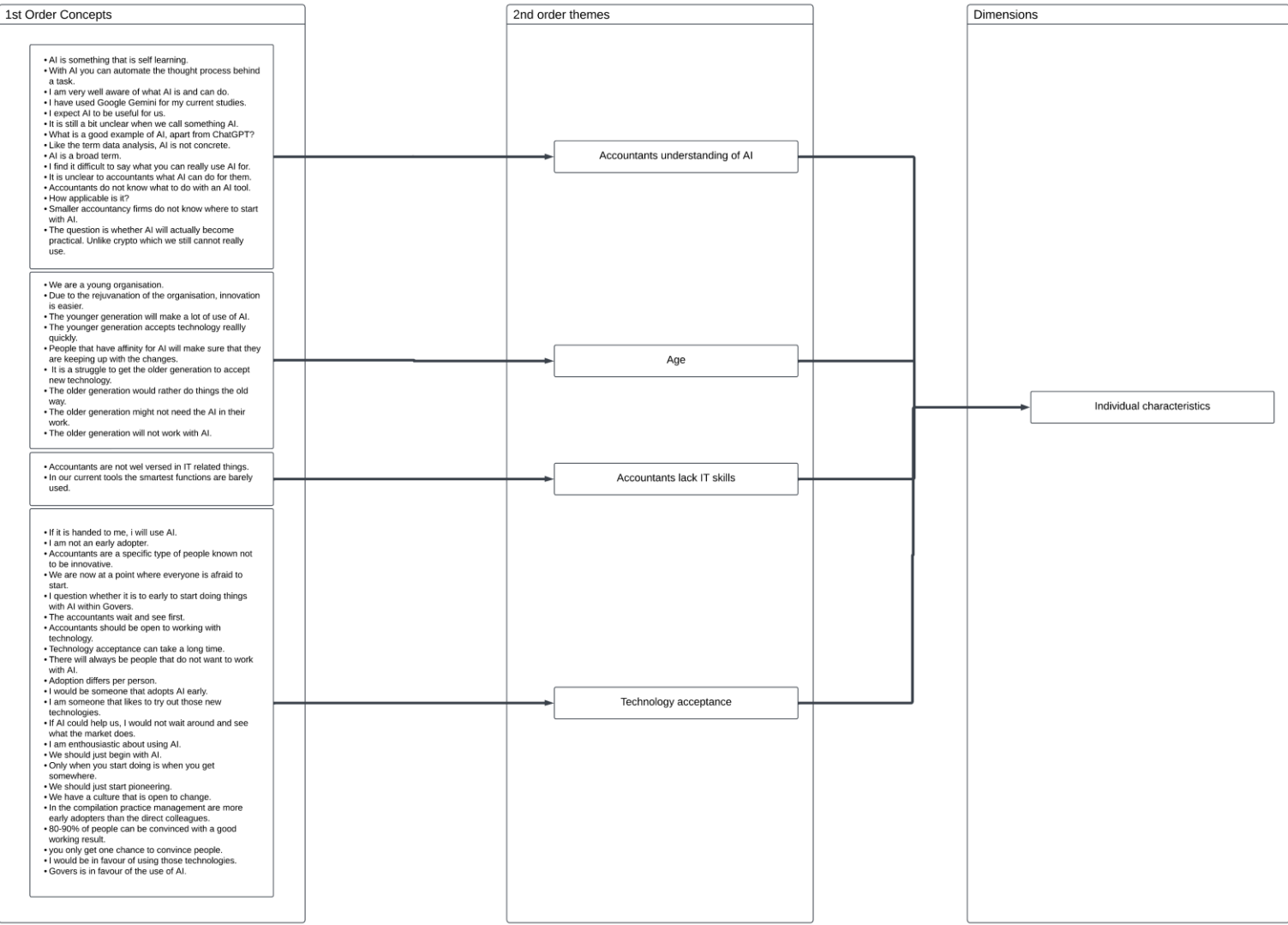
Zijn er dingen omtrent AI in accountancy die we niet besproken hebben die u wilt delen?

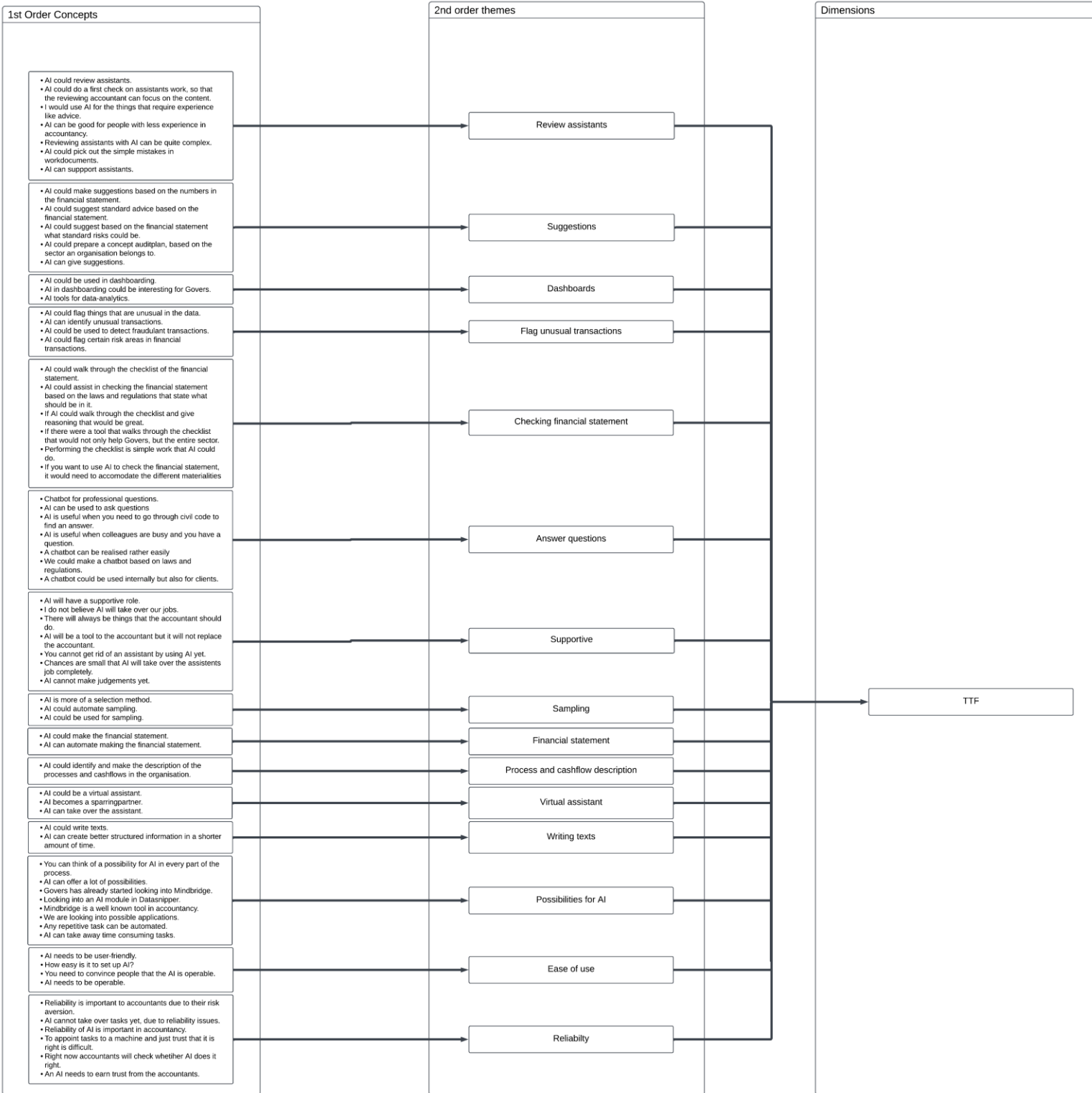
Bedank deelnemer voor de tijd en deelname. Bedank deelnemer voor de waardevolle inzichten

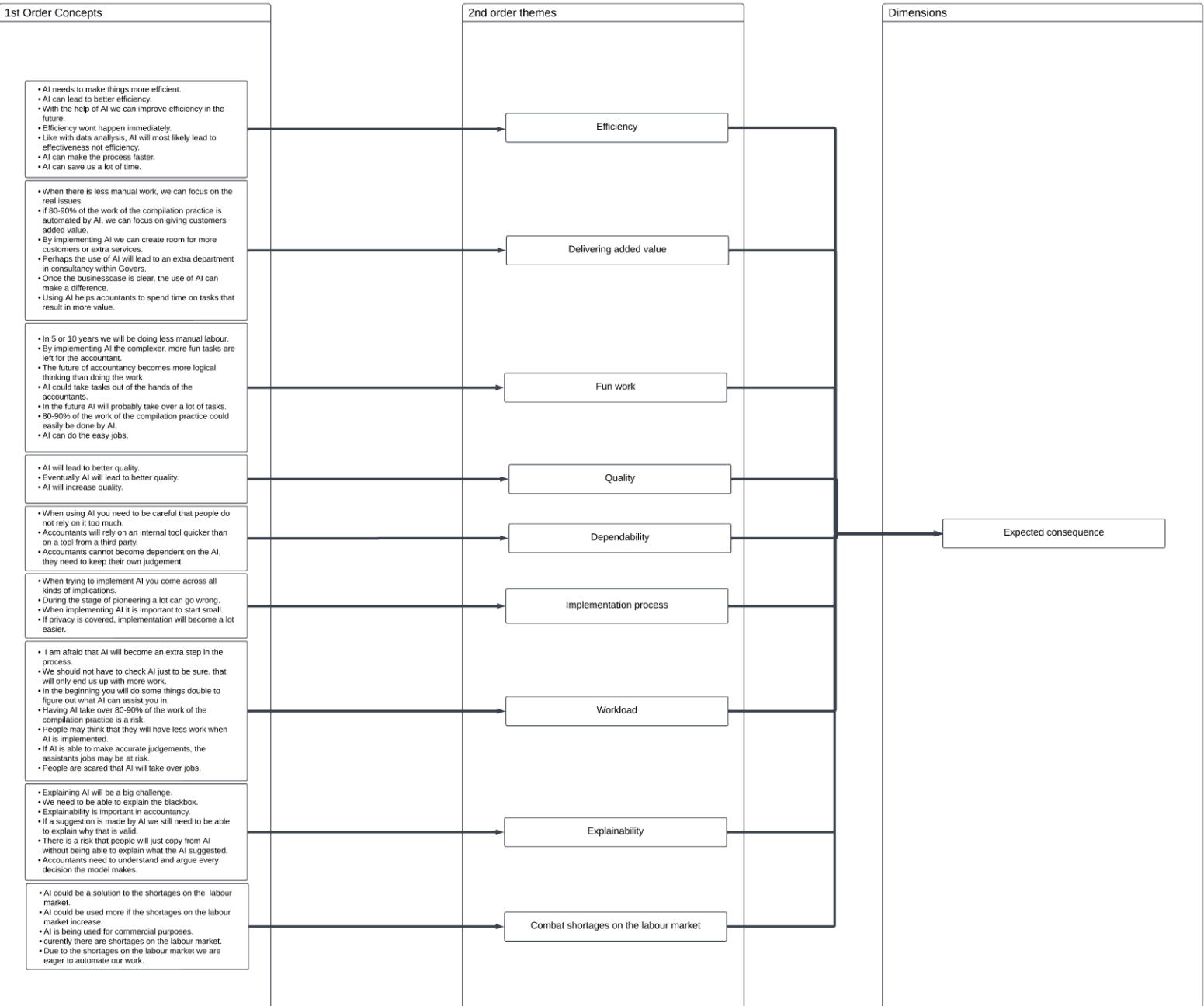
Verifiëren van toestemming voor het opnemen van het interview, herhalen dat data anoniem verwerkt zal worden

## Appendix G. Data structure

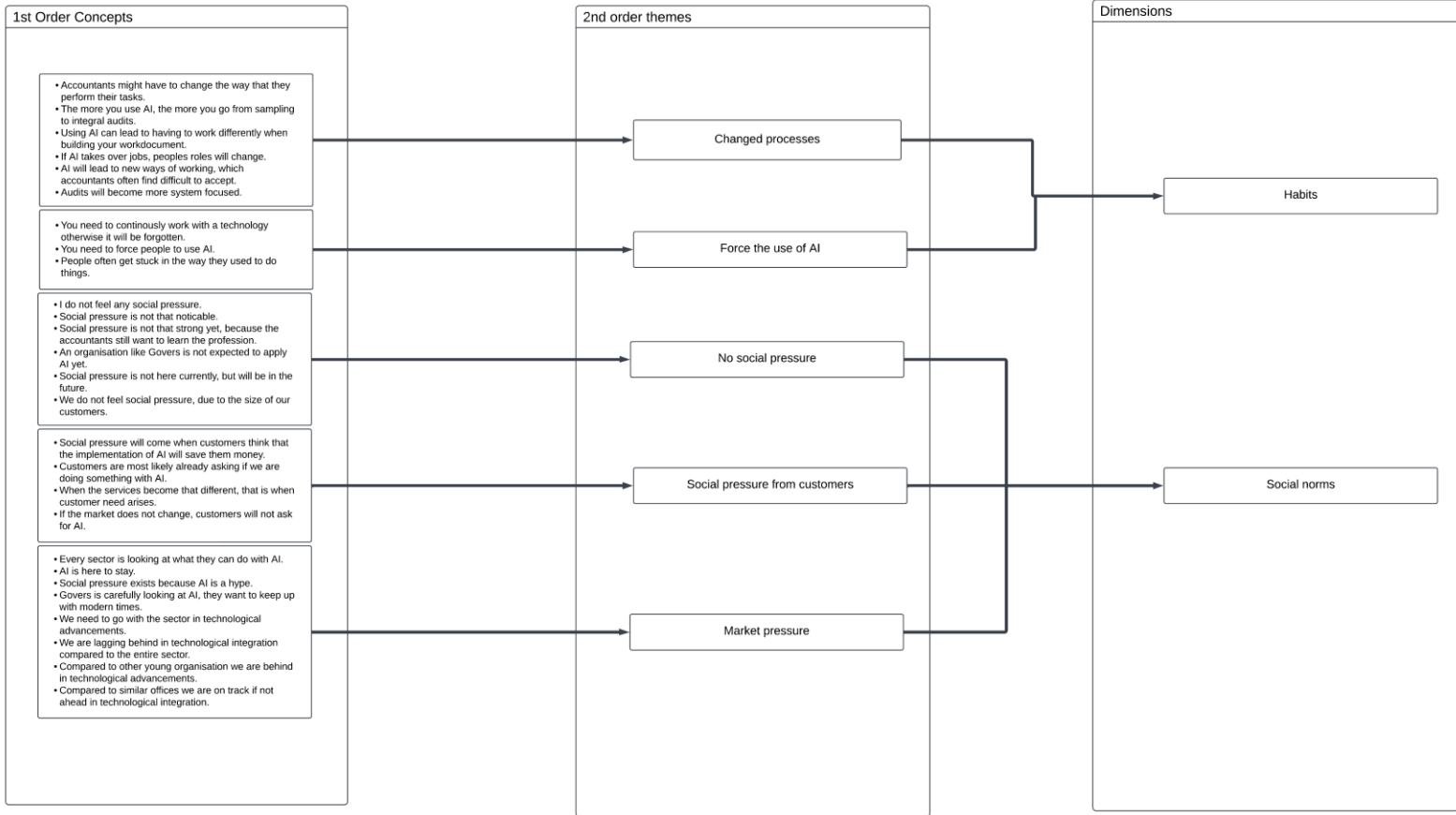
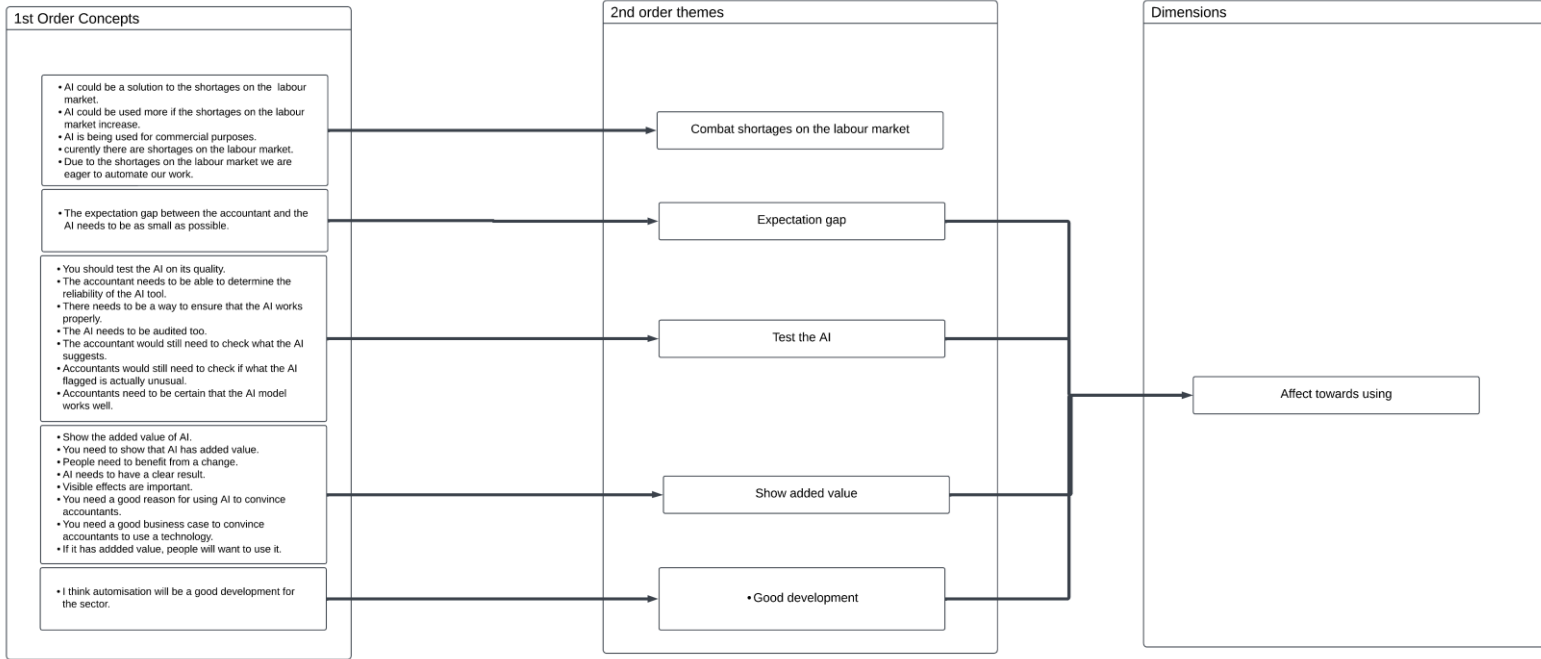


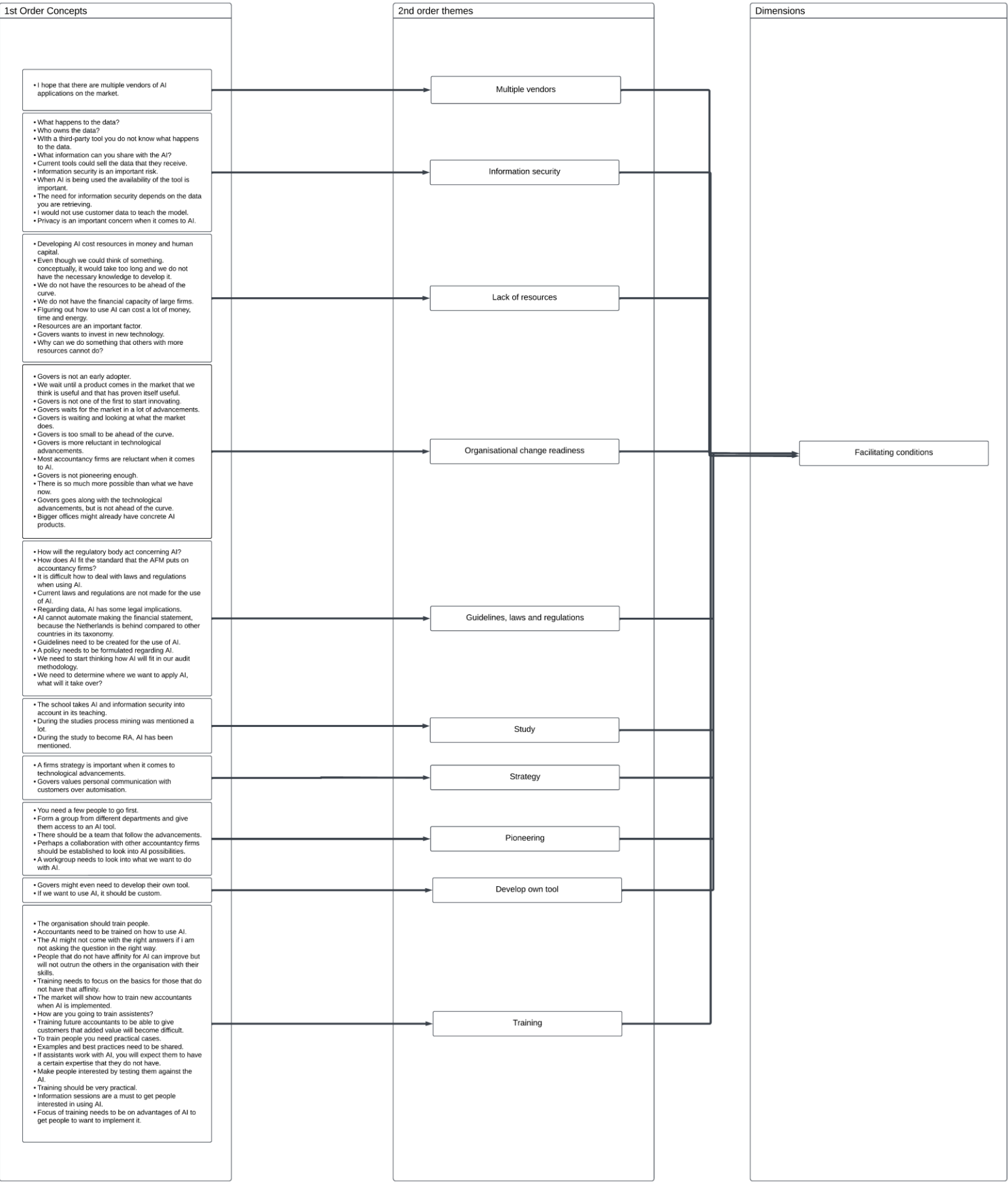












## Appendix H. Overview comparing findings to existing literature

Themes	Supported by interview	Supported by literature
<b>Task characteristics</b>		
Huge amounts of data	1, 3	Imene & Imhanzenobe (2020).
Easy and boring tasks	1, 11	Thakker & Japee (2023); Peng et al. (2023); Aryal & Callahan (2022); Nayak & Sahoo (2021); Peace (2021); Värzaru (2022).
Verifying processes	1	Saxunova (2017); Imene & Imhanzenobe (2020).
Customer specific	1, 10	Frishkoff (1970).
Compilation tasks	1	Saxunova (2017); Imene & Imhanzenobe (2020).
Professional judgement	7, 9, 11	Thakker & Japee (2023); Peng et al (2023); Aryal & Callahan (2022); Nayak & Sahoo (2021); Peace (2021); Värzaru (2022)
<b>Individual characteristics</b>		
Age	2, 3, 6, 7, 9	Tornatzky and Fleischer, 1990; Venkatesh et al., 2003
Accountants understanding of AI	1, 2, 5, 9, 10	Thakker & Japee (2023); Emetaram & Uchime (2021).
Technology acceptance	3, 6, 8, 9, 10, 11	Glikson & Woolley (2020); Leao & Gomes (2022); Saxunova (2017); Schmidt et al. (2020).
Lack of IT skills	2, 3	Jackson et al. (2022); Ku Bahador & Haider (2012).
<b>Technology characteristics</b>		
Correctness	2, 4	Munoko et al. (2020); Nayak & Sahoo, (2021); Sambasivan et al. (2021); Aryal & Callahan (2022).
Sources	6,8,9	Ahmad (2024); Kokina & Davenport (2017); Barišić (2022); Thakker & Japee (2023); Munoko et al. (2020); Nayak & Sahoo, (2021); Sambasivan et al. (2021).
Finding patterns	3	Värzaru (2022); Munoko et al. (2020); Thakker & Japee (2023); Peng et al. (2023).
Technological development	3, 11	Peng et al. (2023), Leitner-Hanetseder et al. (2021); Schweitzer (2024).
Closed systems	8, 10	-
<b>Task-Technology Fit</b>		
Review assistants	2, 4, 10	Zhang et al. (2020); Aryal & Callahan (2022); Damerji & Salimi (2021).

Suggestions	2, 4, 5, 6, 11	Schweitzer (2024); Damerji & Salimi (2021); Thakker & Japee (2023).
Dashboards	2, 11	-
Flag unusual transactions	1, 3, 7, 9	Peng et al. (2023); Munoko et al. (2020) ; Aryal & Callahan (2022); Damerji & Salimi (2021); Zhang et al. (2020).
Checking financial statement	1, 3, 10	Thakker & Japee (2023) ; Aryal & Callahan (2022).
Answer questions	1, 7, 8, 10, 11	-
Supportive	2, 4, 5, 10,11	Ahmad (2024) ; Aryal & Callahan (2022).
Sampling	3, 9	Zhang et al. (2020); Aryal & Callahan, 2022; Damerji & Salimi, 2021; Munoko et al., 2020
Financial statement	5, 9	Thakker & Japee (2023) ; Aryal & Callahan (2022); Schweitzer (2024); Palazzo et al. (2012); Sherif & Mohsin, 2021.
Process and cashflow descriptions	3	-
Virtual assistant	4, 6	-
Writing texts	7	Thakker & Japee (2023); Zhang et al. (2020); Munoko et al. (2020).
Possibilities for AI	2, 7, 10	Thakker & Japee (2023); Peng et al. (2023); Aryal & Callahan (2022); Nayak & Sahoo (2021); Peace (2021); Värzaru (2022).
AI's fit in the audit methodology	3, 11	Peng et al. (2023).
Ease of use	2, 5, 9	Munoko et al. (2020); Kokina & Davenport (2017).
Reliability	4, 10	Glikson & Woolley (2020); Naik et al. (2022 as cited in Ahmad, 2024); Schweitzer (2024); Aryal & Callahan (2022).
Data quality	2	Thakker & Japee (2023); Munoko et al. (2020); Nayak & Sahoo, (2021); Sambasivan et al. (2021); Ahmad, 2024; Kokina & Davenport (2017); Barišić (2022).

### Expected consequences of utilization

Efficiency	3, 4, 9, 10, 11	Thakker & Japee (2023); Peng et al. (2023); Aryal & Callahan (2022); Nayak & Sahoo (2021); Peace (2021); Värzaru (2022); Munoko (2020); Zhang et al. (2020).
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Delivering added value	4, 5, 10, 11	Thakker & Japee (2023); Peng et al. (2023); Aryal & Callahan (2022); Nayak & Sahoo (2021); Peace (2021); Värzaru (2022).
Fun work	6, 7, 9, 11	Thakker & Japee (2023); Peng et al. (2023); Aryal & Callahan (2022); Nayak & Sahoo (2021); Peace (2021); Värzaru (2022).
Dependability	5, 8, 11	Glikson & Woolley (2020); Munoko et al. (2020).
Workload	3, 5, 10	Thakker & Japee (2023); Peng et al. (2023); Aryal & Callahan (2022); Nayak & Sahoo (2021); Peace (2021); Värzaru (2022).
Combat shortages on labour market	6, 9, 10	Ahmad (2024); Aryal & Callahan (2022)
Quality	3, 4, 11	Värzaru (2022); Zhang et al. (2020); Munoko et al. (2020).
Explainability	3, 10	Glikson & Woolley (2020); Naik et al. (2022 as cited in Ahmad, 2024), Schweitzer (2024); Munoko et al. (2020); Kokina & Davenport (2017); Thakker & Japee (2023).
Implementation process	6, 9, 10	Thakker & Japee (2023), Glikson & Woolley (2020); Emetaram & Uchime (2021).

#### **Affect towards using**

Expectation gap	5	-
Test the AI	5, 9	Glikson & Woolley (2020); Aryal & Callahan (2022).
Show added value	7, 9, 10, 11	-
Good development	6	Thakker & Japee (2023); Peng et al. (2023); Aryal & Callahan (2022); Nayak & Sahoo (2021); Peace (2021); Värzaru (2022).

#### **Social norms**

No social pressure	2, 6, 10, 11	-
Social pressure from customers	4, 5, 6	-
Market pressure	1, 4	Nayak & Sahoo (2021); Zhang et al. (2020); Damerji & Salimi (2021); Aryal & Callahan (2022); Munoko et al. (2020); Emetaram (2021); Hasan (2022).

#### **Habit**

Force use of AI	7	-
Changes processes	3, 9, 10	Thakker & Japee (2023); Peng et al. (2023); Aryal & Callahan

(2022); Nayak & Sahoo (2021);  
Peace (2021); Värzaru (2022).

### Facilitating conditions

Lack of resources	1, 2, 4	Aryal & Callahan (2020).
Multiple vendors		Nayak & Sahoo (2021)
Organisational change readiness	4, 7, 9	-
Study	2, 7, 10, 11	-
Guidelines, laws and regulations	3, 6, 7, 9	Peng et al (2023); Lu et al. (2018); Munoko et al. (2020); Thakker & Japee (2023); Barišić (2022); Ahmad (2024); Aryal & Callahan (2020); Schweitzer (2024).
Strategy	6, 7	-
Pioneering	4, 7, 11	-
Develop own tool	6, 8	Thakker & Japee (2023); Nayak & Sahoo (2021).
Training	2, 9, 10, 11	Naik et al. (2022 as cited in Ahmad, 2024); Thakker & Japee (2023); Emetaram & Uchime (2021); Aryal & Callahan (2020).
Information security	4, 5, 9, 10, 11	Munoko et al. (2020); Nayak & Sahoo (2021); Tucker (2018); Horvitz & Mulligan (2015); Thakker & Japee (2023); Emetaram & Uchime (2021); Soori et al. (2023, cited in Ahmad, 2024); Schweitzer (2024); .

## **Appendix I. Research data management plan**

### 1. research data

This research will be conducted through interviews. When conducting these interviews, the interviewee will be asked for their consent to collect this data and the data will be processed anonymously.

### 2. Processing personal data in research

As the data will be processed anonymously there is no personal data involved.

### 3. Permissions and rights relate to the use of data

As mentioned, the participants of the interviews will be asked their consent for recording the interview, collecting, and processing the data before the interview. After the interview I will ask whether anything that can be considered sensitive information has come up during the interview so that I can leave this out of the data if necessary.

### 4. Storing the data during the research process

During the research process the data will be stored in the Seafire cloud services provided by the University of Turku.

### 5. Documenting and Metadata

#### 5.1 Data documentation

To document the data, I will use a separate document where I will record the main points of the data, such as changes made, phases of analysis, and significance of variables.

#### 5.2 Data arrangement and Integrity

I recognise the life span of the data from the beginning of the research and am already prepared for situations, where the data can alter unnoticed, for example while recording, transcribing, downloading, or in data conversions from one file format to another.

5.3 I will not store my data into a public archive/ repository, and therefore I will not need to create any metadata.

## 6. Data after completing the research

The data that has been collected will be kept until the completion of the thesis, this means that the data will be retained up until the point where the grade for the thesis is officially registered in the grading system of both universities.