



# Challenges Faced by Accounting Professionals in Artificial Intelligence-Based Technology Environment and Determinants of Acceptance

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**Abstract.** Artificial intelligence (AI) refers to the ability of machines to perform tasks on behalf of humans, while learning over time. With digital technologies, repetitive and routine accounting tasks can be performed with the assistance of AI-based technology. This provides accounting professionals with more time to focus on tasks that require judgement and skills beyond the scope of AI. Additionally, a company can gain benefits such as cost savings from improved efficiencies in accounting functions. However, without the acceptance of AI-based technology by accounting professionals, it is unlikely the company will realize these benefits. This paper aims to investigate the key challenges faced by accounting professionals in adopting AI-based technology. The research examines, from the perspective of the Technology Acceptance Model (TAM), how perceived ease of use, perceived usefulness, and trust as an additional variable determine AI-based technology acceptance among accounting professionals. The study concludes with a conceptual framework to provide insights on forces driving the use of AI-based technology in the accounting profession.

**Keyword.** Artificial intelligence, Challenges, TAM, Technology acceptance, Accounting professionals

## 1 Introduction

Artificial intelligence is defined as the machines' ability to perform tasks on behalf of human, while learning over time, such as automation of processes in decision-making, problem-solving and others [**Error! Reference source not found.**]. This paper reviews how digital technologies changes the roles and skills required of accounting and finance professionals. For clarification, the term "artificial intelligence" (AI) is used in the writing to include all digital technology related terms, such as machine learning, deep learning, blockchain, robotic process automation, business analytics, and enterprise unstructured text data.

It is important for accounting professionals today to overcome their barriers, equip themselves with the necessary digital technology skills and knowledge to keep up with the digitization in the accounting field, and to be involved in the design and development of new technological applications [2]. A study conducted by [3] suggested that the accounting and finance professionals are open to using AI to

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enhance their work performance as it can reduce repetitive tasks and human errors. However, AI is a relatively new technology, and it has not reached a stage where it can entirely replace humans. Nonetheless, the accounting and finance professionals must develop digital literacy skills, enabling them to leverage their knowledge and perform their tasks more efficiently through the application of AI [4]. This would allow them to engage in the performance of newly created AI-based tasks [5].

Today, with the assistance of AI, routine accounting tasks, such as data collection and recording, can be substantially reduced. Repetitive tasks can be completed efficiently with AI, giving accounting professionals more time to focus on tasks which requires judgement and skills beyond the scope of AI [1]. For instance, AI is currently used to extract information, shifting the human role to supervising the data collection process, reviewing the results and addressing special cases where AI is unable to provide solutions [5]. In addition, AI also assists in the integration of financial information for improved analysis [6] and processes real-time data into actionable insights [4]. Another example on the shift of roles and responsibilities of accounting and finance professionals is in the safeguarding of companies' assets. It has become increasingly important for accounting and finance professionals to possess some knowledge and skills on cybersecurity to safeguard important and confidential financial information [2].

## **2 Literature Review**

### **2.1 Challenges Faced by Accounting Professionals in Artificial Intelligence-Based Technology Environment**

AI-based technology has posed new challenges to the work of accounting professionals. The industry has undergone the fastest ever pace of change. Accounting professionals are expected to function effectively within AI-technology based environment, which is characterized by constant updating of technology, blurring scope of authority, as well as unexplainable AI outputs.

The primary concern for accounting professionals is the potential threat of having their jobs replaced by AI-based technology. Improved work efficiency leads to a reduction of headcount needed at workplace [1]. Junior accounting personnel are more likely to be at risk due to their many repetitive tasks that can be easily replaced by robotic automation technology [7]. As AI takes over some accounting functions, the professionals and graduates need to acquire technological skills to perform in the AI driven business environment, thus introducing a new dimension of job security [8]. Thus, one of the main challenges faced by the accounting professional in the AI-based technology environment is the difficulties in building up new skills [5]. Past literature suggests that accounting educators should revamp their methods of teaching accounting students to equip them with the necessary digital skills in performing AI-based tasks in the workplace [3, 5].

The future of AI use in accounting would involve collaboration between accountants and AI [9]. For this reason, AI can augment the work of accountants instead of replacing them [7, 10]. In a study evaluating transition of accounting pro-

fession to AI-based technology, [11] emphasized that AI system must be designed with human-machine teaming capabilities. AI implementations offer the highest potential when there is mutual learning between human and machines [11]. However, this may not happen if accounting professionals lack understanding of how to interface with the machines.

Despite the changing landscape of AI-based technology environment, it is crucial for accounting professionals to maintain their ability to make good decisions. Thus, it is important that accounting professionals continuously acquire new skills to gather information, apply the information to the AI-based technology environment, examine the evidence, and eventually decide and defend choices made within the AI-based technology work contexts [12]. Digital literacy skills, such as data cleaning, data management and correction of incomplete or incorrect data, are highly valued by the accounting industry and public accountants [3].

In addition to the abovementioned challenges, the accounting professionals also face risks in connection to reliance on technology [3], increased cyber risk [2] and especially the key challenge of the resistance to change [8]. Understanding the factors that drive acceptance among accounting professionals in the use of AI-based technology is crucial for reaping the benefits such as cost savings and improved efficiencies. Thus, the study employs the Technology Acceptance Model to analyse the determinants of accounting professionals' intention to accept AI-based technology.

## **2.2 Determinants of Intention to Accept Ai-Based Technology**

As the role of AI is rapidly expanding in the business world, its impact on the accounting profession is profound. AI can perform basic accounting functions like data entry which are typically assigned to entry-level employees. AI can also identify transactions based on source documents and records in the financial statements almost instantly [13]. Progress in AI have also changed the working environment for accountants, resulting in higher connectivity between a company's finance department with other related internal departments [14]. The roles and job scopes of accountants will evolve as they embrace AI-based technology. However, even with the current level of AI technology, decision-related calculations which require higher analytic and critical thinking skills still need to be performed by humans [15].

With the integration of AI-based technologies, accounting firms can benefit by developing more specialized skills and offering consultation services. They should extend their support by assisting their existing clients beyond basic accounting roles, and provide new advanced services [15]. The Big Four accounting firms are seen to be embracing AI technologies which include robotic process automation (RPA), natural language processing (NLP), deep learning technology, machine learning technology for fraud detection, and data capture from physical sensor, among others [16]. Thus, accounting firms should find ways to adapt and respond to the rapid technological developments.

Despite the massive technological development, there appears to be insufficient data supporting readiness to embrace AI-based technology in accounting activities [17]. While the accounting professionals acknowledge that AI can handle repeti-

tive tasks, they are doubtful whether AI can indeed reduce their workloads [3]. Accountants may also be hesitant to employ AI technology out of fear that it could lead to job loss [18]. Thus, it is important to understand the factors that could affect the AI acceptance by accountants. The following sections evaluate the factors that affects intention to accept AI-based technology by accounting professionals.

### **Technology Acceptance Model**

Technology Acceptance Model (TAM) was developed by [19] and subsequently refined by [20]. The two main variables of the TAM are the perceived ease of use (PEOU) and perceived usefulness (PU). It is a widely employed model to assess the behavioural intention to adopt a technology and its actual adoption. The TAM holds a dominant position in assessing technology acceptance [21]. The usefulness of the model lies in its ability to measure a user's beliefs and attitudes toward technology even if they have not yet used that technology [22].

According to [23], the TAM is an adaptable model as demonstrated by the extensions carried out by researchers. It is best utilized to assess present technologies or studies on the acceptance of multiple perspective due to its flexibility in accommodating additional variables. Enhanced models have been developed by introducing variables beyond the original variables of PEOU and PU [24]; [25]. The extended TAM has been widely used to evaluate AI technology acceptance [23], and has been used to assess the perception of AI by accounting professionals and educators [3]. In a study by [26], the TAM was modified to examine the impact of PEOU and PU on the correlation between technology readiness and the AI adoption among accounting students.

### **Perceived Ease of Use (PEOU)**

Perceived ease of use (PEOU) is defined as a user's assessment of how easy a technology would be to use [20]. PEOU is a common factor explored in many research papers relating to AI adoption intention in various industries and is found to have significant contribution to behavioural intention. Studies cover diverse areas including success factors required to implement AI projects in health sector [27], AI adoption in manufacturing companies [28], students' perceptions of AI teaching assistant in online education [29], determinants of AI-based recruitment system [30], and factors affecting medical staff's intention to learn and use AI applications to support precision medicine [31].

PEOU is also used to evaluate the AI adoption intention for accounting profession. In a research of AI acceptance by management accountants, [18] used flexibility, rapidity, customization, and enjoyment as the determinants of PEOU. Findings showed a significant and positive correlation between PEOU and intention to accept AI-based technology, with rapidity having the highest influence. PEOU is also found to have a significant positive relationship with the adoption of AI in accounting and auditing [26].

Thus, we hypothesize that:

H1: There is a positive relationship between perceived ease of use and the inten-

tion to accept AI-based technology by the accounting professionals.

### **Perceived Usefulness (PU)**

Perceived usefulness (PU) is defined as the degree to which a user believes that the technology is useful to his/her daily life [20]. PU is the user's assessment of the extent to which a technology enhances their performance [18].

PU or performance expectancy is a commonly explored factor in many research papers relating to AI adoption intention in various industries and is found to have significant positive relationship with behavioural intention. Studies cover diverse areas which include librarians' intentions to adopt AI [32], use of AI devices in hedonic and utilitarian services [33], consumers' attitude and purchase intention toward AI device [34], user intention to shop at AI-powered automated retail stores [35], and acceptance of AI virtual assistant [36].

For the accounting profession, it is perceived that AI technologies have the potential to remove tedious repetitive tasks and reduce the risk of errors allowing employees to concentrate on more complex problems [3]. Using innovation, convenience, cost, and informativeness as the determinants of PU, [18] concluded that there is a significant positive relationship between PU and the behavioural intention to use AI technology in management accounting. Notably, innovation is found to have the highest impact on PU.

Thus, we hypothesize that:

H2: There is a positive relationship between perceived usefulness and the intention to accept AI-based technology by the accounting professionals.

### **Trust**

To enhance the predictive ability of TAM, trust is often included as an additional variable [37]. Trust in a technology leads to confidence that use of the technology can accomplish a desired purpose [38]. Trust is commonly introduced as an added variable to the TAM to assess AI acceptance [23]. [39] expanded the TAM with the trust variable to evaluate the acceptance of AI technology and found that there is a significant positive relationship between trust and PU. [40] extended the TAM with trust and noted that trust has an even stronger positive relationship with the behavioural intention to accept smart healthcare services (supported by AI, big data etc) than PU. [41] posited that trust is a strong predictor of behavioural intention to use robot restaurants at business hotels.

[42] studied the corporate attitude regarding the impact of AI technology in the financial sector. It was observed that while respondents generally trust data generated by AI technology, they also supported the idea of designing sound internal controls to mitigate the potential for AI malfunction.

Lack of trust is a major obstacle preventing the adoption of AI technology in managerial accounting [18]. Accounting professionals are uncertain whether to trust AI for decision making [3]. Instances of distrust can be found in studies which highlight the risk of unquestionably accepting the AI technology and its performance due to the potential biases in data collection, which can lead to

skewed results [43]. If such biases lead to higher audit risk or audit failures, then questions of responsibility become paramount [3].

Thus, we hypothesize that:

H3: There is a positive relationship between trust and the intention to accept AI-based technology by the accounting professionals.

### Conceptual Framework

Thus, it is suggested that perceived ease of use, perceived usefulness and trust significantly and positively affects the intention to accept AI-based technology in accounting.

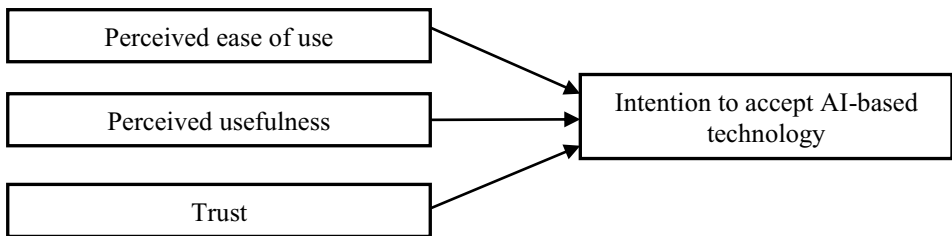


Fig 1. Research Model

## 3 Research Methodology

The target population for this study comprises the accounting professionals in Malaysia. Since the sampling frame cannot be determined, non-probability sampling method will be employed. Purposive sampling will be used as it enables the selection of individuals with desired characteristics which is relevant for the study [44]. According to [45], a sample size of 384 is considered sufficient for a population of more than one million. Data for this study will be collected by distributing self-administered online survey questionnaires to the target respondents. The questionnaire consists of five parts: (1) Background; (2) Individual self-rating of intention to accept AI-based technology in accounting; (3) Questions relating to perceived ease of use; (4) Questions relating to perceived usefulness; and (5) Questions relating to trust. Descriptive analysis will be performed on the collected data and the relationship will be examined and carried out using Smart PLS version 4.0.

## 4 Conclusion and Discussion

Understanding the challenges faced by accounting professionals in AI-based technology environment and the determinants influencing the intention to accept can provide valuable insights. This knowledge can enable the accounting professionals to focus on tasks that require judgement and skills beyond the capabilities of AI.

The proposed study aims to provide insights on forces driving the use of AI-based technology among accounting professionals, potentially leading to benefits such as cost savings from improved efficiencies in accounting functions. In addition, insights from this study can guide accounting educators to revamp their teaching methods to better integrate digital skills into their curriculum. This paper concludes with a conceptual framework that explores the intention to accept AI-based technology among accounting professionals using the TAM and includes perceived ease of use, perceived usefulness, and trust as an added variable to determine the intention to accept AI-based technology.

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