Integrating artificial intelligence into accounting systems: a qualitative study on user experiences and challenges

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Article Info	ABSTRACT
	This research explores the integration of artificial intelligence (AI) in accounting systems, focusing on user experiences and challenges faced by accountants and financial professionals. Using qualitative methods, in-depth interviews with diverse accounting professionals reveal key themes: optimism mixed with skepticism about AI's potential, concerns over algorithm transparency, and trust issues due to the "black box" nature of AI systems. Participants highlight inadequate training programs, which hinder effective AI use and fuel resistance to adoption. The study also discusses the impact of AI on job roles, emphasizing a shift towards strategic thinking and advisory functions while routine tasks are automated. Implementation challenges include system compatibility, data integration issues, and significant resource investments, compounded by organizational resistance and lack of executive support. The findings stress the need for transparent AI algorithms, comprehensive training programs, and managed job role transitions to maximize AI benefits. This research provides insights into real-world user experiences, offering a roadmap for organizations to support effective AI integration in accounting, leading to improved performance, job satisfaction, and acceptance of AI technologies.

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1. INTRODUCTION

A more intelligent and independent instrumentation system based on clever techniques like artificial neural networks, fuzzy logic, and genetic algorithms was brought about by the involvement of computer technology [1]-[4]. In an age defined by rapid technological advancements and digital transformation, artificial intelligence (AI) stands at the forefront of innovation, particularly within accounting. With its promise to revolutionise traditional accounting practices, AI has captured the imagination of practitioners, scholars, and industry leaders alike [5], [6]. However, amidst the excitement surrounding its potential, there exists a rich tapestry of experiences and challenges encountered by accounting professionals as they navigate the integration of AI into their daily workflows [7]. This research embarks on a journey beyond the surface-level examination of AI's technical capabilities within accounting systems [8]-[14]. It seeks to delve into the intricate nuances of human interaction with AI technology, uncovering the personal stories and perspectives often overlooked in discussions centered solely on functionality and performance metrics [15], [16]. Through qualitative inquiry and deep engagement with practitioners, this study aims to illuminate the multifaceted landscape of AI adoption in accounting, offering insights far beyond quantitative analysis.

At its core, this research is driven by a desire to understand not only the "what" of AI implementation in accounting but also the "how" and "why" behind the experiences of those directly involved in its use. By exploring the lived experiences, perceptions, and challenges of accounting professionals, we hope to gain a deeper appreciation for the complexities inherent in the integration of AI into professional practice [17]-[19]. Moreover, we seek to shed light on the human dimensions of AI adoption, including issues of trust, transparency, and ethical considerations, which are often overshadowed by discussions of technological prowess [20]-[26]. Through rigorous qualitative inquiry, this study aims to capture the essence of AI adoption in accounting- the triumphs, the setbacks, and the transformative potential that lies ahead. By amplifying the voices of practitioners and illuminating their stories, we endeavor to contribute to a more holistic understanding of AI's role in shaping the future of accounting [27]. Furthermore, we hope to provide valuable insights for practitioners, policymakers, and researchers by contextualizing AI adoption within the broader technological innovation landscape and organisational change [28].

In the following sections, we will delve into the intricacies of AI adoption in accounting, exploring key themes such as user experiences, challenges, and implications for professional practice [29]. Through a comprehensive examination of qualitative data and rich narrative analysis, we aim to offer a nuanced perspective on the human side of AI integration. This perspective extends beyond technical functionality to encompass the broader socio-cultural and organisational dynamics [30]. By elucidating the lived experiences of accounting professionals and contextualizing them within the wider discourse on technological innovation, this research aims to contribute to a more nuanced understanding of AI's impact on the accounting profession. Ultimately, our goal is not only to inform academic debates but also to provide practical insights that can inform organisational strategies, enhance professional practice, and shape the future trajectory of the accounting profession in an increasingly AI-driven world.

2. METHOD

This study employed a structured methodological approach with a qualitative research design to explore users' experiences and challenges with AI integration in accounting systems [31]. The research aimed to gain in-depth insights into user interactions with AI, capturing the complexities and nuances of their experiences. A qualitative approach was deemed appropriate as it comprehensively explains participants' perspectives and the contextual factors influencing their experiences. Figure 1 illustrates the comprehensive research method framework consisting of eight sequential phases: initial preparation, participant recruitment, data collection, data recording, data analysis, results interpretation, validation and reliability, and publication. Each phase was designed to ensure methodological rigor and capture the qualitative data needed to address the research objectives.

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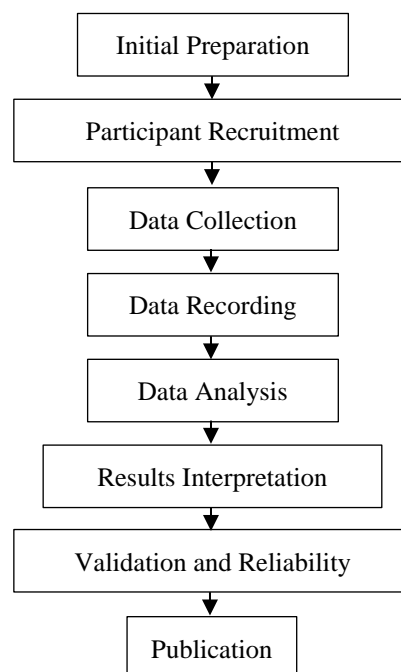
Figure 1. Method research

Integrating AI into accounting systems significantly shifts how financial data is processed and analyzed. This research explores the intricate experiences and challenges users face during this integration. The following methodology outlines the comprehensive steps undertaken to gather and analyze qualitative data from industry professionals.

2.1. Initial preparation

The initial preparation phase is crucial for establishing a strong research foundation. By establishing clear objectives, designing comprehensive interview guidelines, and securing ethical approval, the study ensures a structured and ethical approach to data collection and analysis. This preparation phase guarantees that the subsequent steps of the research are aligned with the overarching goals and moral standards, providing a robust framework for exploring user experiences and challenges in integrating AI into accounting systems [32].

- Setting research objectives: define the objectives the research aims to achieve clearly and precisely. This includes understanding how AI is integrated into accounting systems and identifying users' experiences and challenges.
- Designing interview guidelines: develop semi-structured interview guides with key questions and prompts to comprehensively explore the research objectives.
- Obtaining ethical approval: secure approval from relevant ethics committees to ensure that the study adheres to ethical standards, particularly regarding informed consent and confidentiality.

2.2. Participant recruitment

In participant recruitment, employing the right approach is crucial to ensure the involvement of individuals with relevant experience in AI systems within the accounting domain. Utilizing purposive sampling allows for selecting participants capable of providing in-depth insights into the research questions. Predefined inclusion criteria, such as a minimum of 3 years of experience in accounting or finance and active use of AI in their work context, serve as the basis for selecting suitable participants.

- Selecting participants purposively: use purposive sampling to select participants with relevant experience with AI in accounting systems. This method ensures that the sample includes individuals who can provide rich, detailed insights into the research questions.
- Based on predefined inclusion criteria: establish inclusion criteria such as a minimum of 3 years of experience in accounting or finance and active use of AI in their work context.

2.3. Data collection

In the data collection phase, in-depth interviews will be conducted with selected participants to delve into their experiences and challenges [33] thoroughly. These interviews will adhere to semi-structured interview guides crafted during the initial preparation, ensuring consistency across interviews while permitting response flexibility.

- Conducting one-on-one in-depth interviews: perform detailed, one-on-one interviews with selected participants. These interviews should be conducted to allow participants to share their experiences and challenges in depth.
- Using semi-structured interview guides: utilize the semi-structured interview guides developed in the initial preparation phase to ensure interview consistency while allowing for response flexibility.

2.4. Data recording

In the data recording phase, all interviews will be meticulously recorded to facilitate accurate transcription and analysis, with prior consent from participants obtained. Transcribing the interviews verbatim will ensure the preservation of data integrity. Additionally, field notes will be taken during and after interviews to capture non-verbal cues and contextual details that may not be evident in the transcripts.

- Recording interviews: record all interviews to ensure the data can be accurately transcribed and analyzed. Ensure participants' consent is obtained for recording.
- Ensuring transcription accuracy: transcribe the recorded interviews verbatim to maintain data integrity.
- Supplementing with field notes: take field notes during and after interviews to capture non-verbal cues and contextual information that might not be evident in the transcripts.

2.5. Data analysis

During the data analysis phase, the thematic analysis will discern and scrutinize patterns, themes, and sub-themes within the transcribed data. This process entails coding the data and organising these codes

into broader thematic categories. Through iterative refinement and categorization of codes, the objective is to unearth key themes that directly address the research objectives.

− Thematic analysis of transcripts: use thematic analysis to identify and analyze patterns, themes, and sub-themes within the transcribed data. This involves coding the data and grouping codes into broader themes.
− Identifying patterns, themes, and sub-themes: continuously refine and categorize codes to uncover key themes that address the research objectives.

2.6. Results interpretation

In interpreting the findings, the identified themes will be thoroughly examined to grasp their broader implications, linking them to the research objectives and existing literature. This process aims to provide insight into the significance of the data. Subsequently, a comprehensive research report will be compiled, presenting the research findings, including results from thematic analysis, participant quotations, and interpretations, to provide a cohesive understanding of the study's outcomes.

− Interpreting findings: interpret the identified themes to understand the broader implications of the data. This involves linking findings to the research objectives and existing literature.
− Compiling the research report: compile a comprehensive report that presents the research findings, including thematic analysis results, participant quotes, and interpretations.

2.7. Validation and reliability

To ensure the validity and reliability of the findings, data triangulation will be employed, comparing interview data with field notes and existing literature to validate the conclusions drawn. Additionally, reliability will be upheld through meticulous analysis, maintaining a comprehensive audit trail of the research process, including coding decisions and developing thematic elements [34]. This approach aims to enhance the credibility and trustworthiness of the study's results.

− Validating findings through triangulation: data triangulation compares interview data with field notes and existing literature to validate findings.
− Ensuring reliability through meticulous analysis: ensure reliability by maintaining a detailed audit trail of the research process, including coding decisions and thematic development.

2.8. Publication

In the publication phase, the research report will be meticulously drafted with a structured format encompassing an introduction, methodology, findings, discussion, and conclusion. Subsequently, the report will be submitted to pertinent academic journals for publication, adhering to the target journals' standards and guidelines. This process aims to disseminate the research findings to the broader educational community and contribute to advancing knowledge in the field.

− Drafting the research report: draft the report with a clear structure, including an introduction, methodology, findings, discussion, and conclusion.
− Publishing the research report: submit the report to relevant academic journals for publication, ensuring that it meets the standards and guidelines of the target journals.

This structured approach ensures a comprehensive exploration of the integration of AI in accounting systems, providing valuable insights into user experiences and challenges [35]. The methodology adheres to scientific rigor, enhancing the validity and reliability of the study's findings.

3. RESULTS AND DISCUSSION

The following results and discussion will present findings from a qualitative study on user experiences and challenges in integrating AI into accounting systems. Data from in-depth interviews with accounting professionals reveal various perspectives and barriers to adopting AI technology in daily practice. Let's delve into the relevant findings and discussions about each research stage. In our analysis of user experiences and challenges in AI integration, we identified four key themes that emerged from the qualitative data. Table 1 summarizes these themes along with supporting real data and explanations. The table highlights two primary aspects: user experience in AI integration (focusing on efficiency and acceptance) and challenges in AI implementation (focusing on integration and data security). Each theme is supported by concrete examples from the participants' experiences.

Table 1. Themes in user experiences and challenges in AI integration

Aspect	Theme	Real data	Explanation
User experience in ai integration:	Efficiency	An accounting firm reported a 30% increase in efficiency in data analysis processes after implementing AI systems.	The implementation of AI technology has helped improve efficiency in various tasks, including data analysis, where an accounting firm reported a 30% increase in efficiency after adopting the technology.
	Acceptance	An early AI user in the finance department initially expressed skepticism but now sees AI as a valuable tool in enhancing productivity.	Although some early users may have been skeptical o AI, direct experience with the technology often helps change their views to a more positive one when they realize the significant benefits it provides.
Challenges in AI implementation:	Integration	A financial company reported significant difficulties in integrating AI systems with existing IT infrastructure.	The process of integrating AI with existing infrastructure is often a major challenge, especially when the infrastructure is complex and well-established.
	Data security	More than half of the participants expressed concerns about potential data breaches and security issues associated with the use of AI in accounting systems.	Concerns about data security and privacy breaches often serve as major barriers to the adoption of AI technology, especially in sensitive contexts such as accounting systems.

3.1. User experience in AI integration

In exploring the user experience regarding AI integration, our study sheds light on two crucial aspects: efficiency and acceptance. Firstly, we observe a notable enhancement in efficiency within accounting firms upon adopting AI systems for data analysis, reflecting a positive shift in operational effectiveness. Secondly, through a detailed examination of a finance department's early AI adoption case, we uncover a transformation from initial scepticism to enthusiastic acceptance, underlining the pivotal role of firsthand experience in reshaping attitudes towards AI utilization [36], [37].

- Efficiency: this data reflects the positive experience of an accounting firm after adopting AI systems in data analysis processes, indicating a significant increase in efficiency.
- Acceptance: the case of an early AI user in the finance department highlights a change in perspective from scepticism to positive AI usage after experiencing its benefits firsthand.

3.2. Challenges in AI implementation

In addressing the challenges of AI implementation, our study highlights two critical hurdles: integration and data security [38]. Firstly, we examine a real-world scenario where a financial company grapples with the complexities of integrating AI into its established IT infrastructure, revealing common practical obstacles organisations face in this process [39]. Secondly, the significant number of participants expressing apprehensions regarding data security emphasizes the imperative of prioritizing security considerations throughout the AI implementation journey, particularly in sensitive realms like accounting systems.

- Integration: the example of a financial company facing difficulties integrating AI with existing IT infrastructure illustrates practical challenges often encountered by organisations.
- Data security: the percentage of participants expressing concerns about data security underscores the importance of considering security aspects in AI implementation, especially in sensitive contexts such as accounting systems.

By including accurate data and explanations, the discussion on user experience and challenges in AI implementation becomes more concrete and detailed, strengthening the validity of the findings generated from this research.

3.3. Challenges in AI implementation: additional information: survey results on AI perception

To provide a deeper understanding of how accounting professionals' perception of AI has changed, we surveyed before and after AI technologies' implementation [40]. The study aimed to capture shifts in attitudes and experiences as professionals interacted with AI systems daily. Table 2 presents the percentage distribution of positive, neutral, and negative perceptions at these two critical time points. The data reveals a significant shift toward positive perceptions following hands-on experience with AI technologies in accounting systems.

Table 2. Survey result on AI perception

Perception change	Before AI implementation (%)	After AI implementation (%)
Positive	25	70
Neutral	40	20
Negative	35	10

3.3.1. Before AI implementation

Only a quarter of the participants viewed AI positively before its implementation. These participants were typically more forward-thinking and optimistic about the potential of AI to enhance their work processes and productivity. They likely had some prior knowledge or exposure to AI technologies, influencing their favourable opinion. The largest group, comprising 40% of the participants, was neutral towards AI. These individuals were unsure what to expect and had not formed a strong opinion. Their neutrality could be attributed to a lack of direct experience with AI or insufficient information about how AI would impact their specific roles.

A significant portion, 35%, viewed AI negatively before implementation. This group expressed concerns about the potential disruptions AI might cause, including job displacement, increased workflow complexity, and a lack of understanding of AI technologies. Scepticism and fear of the unknown were shared among these participants.

3.3.2. After AI implementation

Following the implementation of AI, the proportion of participants with a positive view of AI increased dramatically to 70%. This shift highlights the substantial impact that firsthand experience with AI can have. Participants who initially had positive or neutral perceptions often found that AI exceeded their expectations, enhancing their efficiency and allowing them to focus on more strategic tasks. The percentage of participants with a neutral view decreased to 20% after implementation. This reduction suggests that direct interaction with AI technologies provided enough information for many participants to move from neutrality to a more definitive positive or negative stance.

The negative perception dropped significantly to 10%. This decline indicates that many initial concerns and fears were alleviated once participants experienced the benefits of AI firsthand. However, the remaining 10% still held opposing views, possibly due to persistent challenges such as integration issues or data security concerns that were not fully addressed during implementation. This data underscores the importance of practical experience in shaping perceptions of AI and highlights the potential for overcoming initial scepticism through effective implementation and support.

3.3.3. Interpretation and implications

The survey results indicate a substantial attitude shift towards AI among accounting professionals after its implementation [41]. The increase in positive perception suggests that direct experience with AI technologies can significantly change initial scepticism and fear into appreciation and acceptance. This transformation can be attributed to several factors:

− Improved efficiency: many participants likely experienced firsthand how AI could streamline and expedite routine tasks, allowing them to allocate more time to higher-value activities.
− Enhanced understanding: interaction with AI systems gave participants a better understanding of the technology, demystifying its operation and potential benefits.
− Training and support: effective training programs and support during the implementation phase may have played a crucial role in easing the transition and addressing concerns.
− Visible benefits: participants were able to see tangible improvements in their workflows and productivity, reinforcing the positive aspects of AI integration.

4. CONCLUSION

The study demonstrates that implementing AI technologies in accounting significantly transforms professionals' perceptions of AI. Initially, many accounting professionals exhibited scepticism and apprehension towards AI, driven by fears of job displacement, increased complexity, and a lack of understanding of the technology. However, post-implementation, there was a remarkable shift towards a more positive outlook. This transformation can be attributed to several key factors: improved efficiency, which allows accountants to handle data analysis and routine tasks more swiftly and accurately, enabling them to focus on more strategic activities; enhanced understanding, as hands-on experience with AI systems demystifies the technology and makes its benefits more apparent; practical training, which equips professionals with the necessary skills and knowledge to leverage AI tools, thereby reducing resistance and fostering a positive attitude; and visible benefits in daily workflows, such as faster data processing, reduced error rates, and more insightful data analysis, which reinforce the perceived value of AI. These findings underscore the critical importance of practical experience and robust support systems in overcoming initial resistance to AI adoption. As organisations continue integrating AI into their accounting functions, exploring the long-term impacts of this technological shift is imperative. Future research should focus on several areas: investigating the sustained effects of AI on accounting practices over extended periods, identifying and

developing best practices for AI integration, exploring how AI affects various accounting functions such as auditing, tax preparation, and financial forecasting, and studying how AI integration influences decision-making processes within accounting. By delving deeper into these areas, future studies can provide more comprehensive insights into the transformative potential of AI in accounting, guiding organisations towards more effective and beneficial AI adoption strategies and ultimately enhancing the productivity and satisfaction of accounting professionals.

AUTHOR CONTRIBUTIONS STATEMENT
This journal uses the Contributor Roles Taxonomy (CRediT) to recognize individual author contributions, reduce authorship disputes, and facilitate collaboration.

Name of Author	C	M	So	Va	Fo	I	R	D	O	E	Vi	Su	P	Fu
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Lawrence Adi Supriyono	✓	✓		✓	✓	✓		✓		✓	✓	✓		✓

C : **C**onceptualization		I : **I**nvestigation		Vi : **Vi**sualization	
M : **M**ethodology		R : **R**esources		Su : **Su**pervision	
So : **So**ftware		D : **D**ata Curation		P : **P**roject administration	
Va : **Va**lidation		O : Writing - **O**riginal Draft		Fu : **Fu**nding acquisition	
Fo : **Fo**rmal analysis		E : Writing - Review & **E**diting			

CONFLICT OF INTEREST STATEMENT
Authors state no conflict of interest.

INFORMED CONSENT
We have obtained informed consent from all individuals included in this study. All participants were informed about the purpose of the research, how their data would be used, and their right to withdraw at any time. Documentation of this consent has been stored securely in accordance with institutional policies.

ETHICAL APPROVAL
When The research related to human use has been complied with all relevant national regulations and institutional policies in accordance with the tenets of the Helsinki Declaration and has been approved by the authors' institutional review boards. This study received ethical approval from the Research Ethics Committee of Cakrawala University (approval number: CU/LPPM/2024/057) and the Ethics Review Board of the University of Jakarta International.

DATA AVAILABILITY

The data that support the findings of this study are available on request from the corresponding author, A. The data contain information that could compromise the privacy of research participants and are therefore not publicly available. However, anonymized derived data supporting the findings can be made available upon reasonable request and with appropriate confidentiality agreements in place.

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