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IMPACT OF AUTOMATION ON ACCOUNTING: WILL TECHNOLOGY ELIMINATE ACCOUNTANT ROLES?

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Abstract:

The rapid development of technology has significantly changed various sectors. The accounting industry has also undergone tremendous changes due to the integration of computerized accounting systems, automation, and internet-based accounting technologies. This study critically explores the extent to which technological progress threatens or reshapes the traditional role of accountants. This study aims to examine the degree to which automation and technology are integrated into current accounting practices and to evaluate the impact of automation and technology on the efficiency and accuracy of accounting practices. This study adopted a primary data research design. Data collection was conducted through surveys and questionnaires. Responses were collected from 137 accounting-related professionals and analyzed using descriptive data analysis and inferential statistics. The regression model yielded an R-squared value of 0.560, indicating that 56% of the variance in accounting practices is explained by computerized accounting systems, automated accounting and accounting internet technologies. Positive correlations were found between computerized accounting systems, automated accounting, and accounting internet technologies with accounting practices. These technologies enhance accuracy, efficiency, fraud detection, internal controls, and real-time financial decision-making. They also enhance financial decision-making by enabling real-time data access, reducing human error, and supporting transparency through tools such as cloud computing, blockchain, and artificial intelligence. The study concluded that technology has not eliminated the need for accountants, but has redefined their role and expanded the scope of their responsibilities. This study contributes to the accounting field by highlighting how technological advancements are reshaping professional roles and client expectations. It provides valuable insights into how firms can use innovation to improve service quality and remain competitive. The findings support the need for skills development so that employees can adapt to increased automation and take on more strategic decision-making roles.

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Keywords:

Automation, Technology, Accounting.

Introduction

Accounting was once a manual bookkeeping process using paper and pencils. The accounting profession has undergone significant changes over the past few decades, and technological advancements are having a profound impact on accounting practices in numerous ways (Adrianto, Tohang, & Tandiono, 2023). Technological advancements are changing the daily work of accountants and impacting the careers of millions of people around the world. As the pace of technological innovation accelerates, this phenomenon will become more and more obvious (Kroon, Alves & Martins, 2021). In recent years, all accounting processes have been computerized due to the development and application of various accounting software (Adrianto, Tohang, & Tandiono, 2023). In this regard, there is a heated debate about the impact of these technological advances on the future. Will the automation completely replace the work of accountants, or will it improve the accounting process and the work of accountants to a certain extent?

The emergence of technology has had a significant impact on accountants in several ways. Many technologies like robo-advisors, cloud-based systems and blockchain are set to reshape the role of Certified Professional Accountant (CPA) significantly. This transformation will raise concerns about the potential loss of certain jobs (Shaleh, 2024).

The above issues have prompted some scholars to study the impact of advanced technologies on accountants and their work. Agarwal (2024) stated that due to automation, accountants will have more time to focus on data analysis, strategic planning, and other value-added activities. Automation significantly reduces the burden of repetitive but necessary tasks, streamlining daily operations. According to Didion, Hernández, Kaushik, & Masri (2019), Robotic Process Automation (RPA) can cut costs by 30% to 60% while also enhancing service quality. Accountants can use the automation technologies to explore deeper into financial data, identify trends and provide valuable insights to help businesses make better decisions. Other than that, automation can also be used to provide personalized support and guide clients through complex financial challenges.

Besides that, Hayes (2024) predicted that the accounting profession might disappear within the next 5 years due to the growing potential of technology and automation to replace the work traditionally done by accountants. Automation is advancing rapidly, and it is no longer limited to basic tasks such as tax returns, financial reports, or payroll. It is now extending into more complex areas like complex financial forecasting.

Research Problem

Firms are increasingly adopting strategic policies to improve service delivery, maximize profits, and remain competitive. A survey conducted by Sage (2025) shows that accountants are increasingly expected to provide a wider range of business and financial advisory services, especially in response to the impacts of the COVID-19 crisis. 79% of accountants say client expectations now include consultancy, and 86% reveal that clients want more flexible service options. Technology plays a key role in meeting these new demands. 43% of accountants say technology integration has increased productivity, and 40% plan to invest in predictive

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analytics. Technological innovations have dramatically changed the way businesses, especially in the accounting field, operate and publish financial information. These advances are impacting nearly every aspect of the accounting profession and are leading to expectations for greater automation.

A major concern about accounting automation is the potential for job displacement. Routine tasks such as data entry and reconciliation, which once consumed significant time and resources, are increasingly being automated, reducing the need for traditional roles (Shaleh, 2024). However, technology is also transforming the profession, enabling accountants to take on more strategic, high-impact roles. This shift creates exciting opportunities for young professionals to enter a field that is increasingly driven by innovation. As the accounting profession continues to invest in technological advancements, it is well-positioned to lead the way in building more efficient, future-proof financial systems (Heller, 2022). The accounting industry is facing a volatile business environment due to increased competition and rapid technological advancements. As automation becomes more prevalent, firms must adapt to remain competitive. As automation becomes more advanced and pervasive, employers are no longer looking for workers with basic skills, but rather the skills needed for robots and humans to work simultaneously (Moyer, 2020). Employers should ensure that their employees have the right skills and capabilities, which is critical to maintaining strong overall company performance.

As financial information becomes increasingly digitized, it raises significant ethical and security issues, such as increasing the risk of cybersecurity breaches, necessitating stronger security frameworks to protect sensitive data. Furthermore, the use of AI in decision-making raises ethical challenges, such as algorithmic bias and a lack of transparency and accountability. These concerns have prompted the development of industry-wide standards to govern the deployment of automated tools and implement rigorous cybersecurity measures to safeguard financial data (Shaleh, 2024).

Justification of the Study

The rapid technological advancements have dramatically changed accounting practices, highlighting the challenges of adapting to new tools and ensuring data security. Although several studies have been conducted on technological innovation, little research has been conducted on accounting firms, and there is a need to fill this gap. Oyeniyi, Ugochukwu & Mhlongo (2024) looked into Robotic Process Automation (RPA) in routine accounting tasks and its efficiency analysis. However, the study was limited to RPA, a specific subset of automation, and it focused on efficiency analysis. Other than that, Taha (2021) investigated the effects of automation on employment opportunities and consumer satisfaction in the accounting department of Deloitte San Francisco. However, despite the existence of several studies that have explored the use of technology in business and accounting, there remains a conceptual gap in examining the impact of automation on accounting practices. This study aims to fill this gap by specifically examining this relationship.

Research Questions and Objectives

This study aims to examine the degree to which automation and technology are integrated into current accounting practices and to evaluate the impact of automation and technology on the efficiency and accuracy of accounting practices. Specifically, the researchers attempt to answer the following research questions.

1st question: To what extent are automation and technology employed in accounting practices?

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2nd question: How does the use of automation and technology impact the efficiency and accuracy of accounting practices?

Literature Review

Technology Acceptance Model

The Technology Acceptance Model (TAM) was created by Fred Davis and Richard Bagozzi in 1989. It is used to explain and predict users' acceptance of technology by identifying key psychological and behavioural processes. TAM was refined from the Theory of Reasoned Action (TRA) and focuses specifically on how users perceive, accept, and use new technologies. The purpose of TAM is to furnish a theoretical foundation for understanding how users adopt and accept technology. It serves as a framework for assessing systems before implementing them. Other than that, it also helps in identifying the key factors that influence system adoption and minimizing the risk of failure for practitioners (Marikyan & Papagiannidis, 2024).

There are two core concepts of TAM, which are Perceived Usefulness (PU) and Perceived Ease of Use (PEU). PU refers to the belief that using a technology will improve job performance, while PEU reflects the belief that the technology can be used with minimal effort. Both of them influence users' attitudes toward technology, which in turn affects their behavioural intentions and ultimately determines actual usage. PU is particularly important in understanding how and why users choose to adopt new technologies. Davis (1989) indicates that technology's usefulness is often shaped by how easy it is to use (Quinto, 2022).

Perceived usefulness of IT is also a key factor affecting its acceptance in various industries, including audit. Pedrosa, Costa, & Aparicio (2020) show that perceived benefits significantly impact the adoption of IT in auditing, supporting the notion that the advantages a technology provides strongly influence its acceptability. If technology is perceived as lacking benefits, it is unlikely to be adopted, and this can illustrate why IT adoption in auditing can lead to improvements in audit practices and the profession as a whole (Purnamasari, Amran, & Hartanto, 2022).

The Technology Acceptance Model (TAM) was used very frequently in many studies to investigate technological acceptability in accounting and auditing (Abdullah & Almaqtari, 2024). In this study, we use the Technology Acceptance Model (TAM) to explain how accounting professionals perceive automation and incorporate it into their work. In addition, the TAM can help us to explain how and why technology adoption leads to changes in accounting practices.

Theoretical Framework

This study uses institutional logics as a theoretical framework to explore how technology impacts individuals and organizations. Institutional logics is a concept that explains how ideas, values, and beliefs shape the behaviour, decision-making processes, and actions of individuals and organizations. It provides a lens through which we can understand the changes triggered by the introduction of technology as it reflects the values and principles that guide organizational behavior and success (Fernandez & Aman, 2018).

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Institutional logics were first proposed by Friedland and Alford in 1991 and later expanded by Thornton, Ocasio, and others. It has now been widely used in the fields of organizational identity, governance, finance, marketing, entrepreneurship, corporate social responsibility, innovation and inter-organizational networks (Wu, Tan, & Wang, 2023).

Institutional logics were composed of values, beliefs, rules, and historical assumptions that govern social reality and shape how individuals interpret and act within their environment (Fernandez & Aman, 2018). It also influences decisions such as technology selection, role allocation, and the definition of effectiveness criteria. In particular, professional logic (a subset of institutional logic) is crucial for understanding how technology impacts individual career development and organizational performance. Professional logic focuses on individual reputation, connections, and career advancement, emphasizing how technology adoption transforms organizational practices (Fang, Wilkenfeld, Navick, & Gibbs, 2023).

The framework also explores how the introduction of new technologies affects the way organizations collect, store, and use data, leading to changes in professional behavior and organizational processes. These changes can lead to shifts in individual identities, roles, and skills, particularly during career transitions (Jain, George, & Maltarich, 2009). Institutional logics help explain the broader impact of technological change on organizational decision-making and the roles of individuals within the firm.

Accounting Practices

The history of accounting can be divided into four stages: the Emergent Stage, the Preanalytic Stage, the Development Stage, and the Modern Stage. During the Emergent Stage, the recordkeeping process was very basic, such as ticks, knots, and symbols drawn on the cave walls to record the exchange or lending of items. This phase culminated in the publication of the first book on double-entry bookkeeping by Luca Pacioli in 1494, a work that laid the foundation for the modern accounting system (2U Wordpress, 2024).

The following stage is the Preanalytic Stage, which began in 1495 and ended in 1799. Some key accounting concepts were introduced in this period, including going concern, periodic inventory and money measurement (2U Wordpress, 2024).

The subsequent stage is the Development Stage, which extended from 1800 through 1950. Due to the rise of the manufacturing economy and the emergence of the joint-stock companies, accounting practices became more complex and structured (2U Wordpress, 2024).

The fourth stage is the Modern Stage, which began in the mid-20th century and continues to the present day. This stage is characterized by widespread adoption of a standardized reporting framework, such as the Malaysian Financial Reporting Standards (MFRSs) in Malaysia and the Generally Accepted Accounting Principles (GAAP) in the United States. The focus shifted toward long-term financial forecasting, transparency, and accountability in financial statements. Other than that, globalisation and technological advancements have made modern accounting a dynamic and highly specialized field (2U Wordpress, 2024).

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Computerized Accounting Systems

Generalized Accounting Software

As technology continues to advance, traditional manual systems are gradually being replaced by computerized accounting software, which can provide timely financial reporting and better internal controls. This shift is particularly beneficial for small and medium-sized enterprises (SMEs), which often encounter issues like incomplete records, limited financial knowledge, and scarce resources (Thottoli, 2021). Generalized accounting software provides some advantages that can make financial management more efficient and reliable. It can be used to automate data processing, which will lead to a faster and more accurate handling of multiple transactions with minimal manual effort, reducing the risk of errors. The system integration will automatically update and generate accounting reports in user-defined formats, offering real-time data access to multiple users across networked systems. They also facilitate the generation of Management Information System (MIS) reports, supporting management in effective monitoring and control. In addition, the accounting records will be stored in digital storage, unlike in the past when they were kept in physical form, thereby replacing traditional books and registers (Sharma, 2025).

According to Ullah, Aijaz, Ullah, & Nawaz (2023), their study investigated which accounting software is most effective for accountants in SMEs in the United Kingdom (UK). They suggested that Zoho is among the most effective options, compared to other software such as QuickBooks, FreshBooks, Wave, and others. There are many accounting software that accountants are using in Malaysia, including Xero, Zoho Books, Financio, Bukku Accounting, SQL Account, and many more. SQL Account is one of the accounting software that is widely used in Malaysia. It is a leading cloud-based accounting software that is designed to simplify and enhance financial management for businesses of all sizes. It has many features like real-time financial reporting, invoicing, multi-currency support, and GST compliance, which help companies automate tasks and make informed decisions. It is a key player in modernizing financial operations across Malaysia, aiming to make cloud accounting the standard for efficient and compliant business practices (ICT Monitor Worldwide, 2024).

Forensic Accounting

Forensic accounting merges accounting, auditing and investigating skills, which play an important role in legal cases that involve fraud, litigation, and insurance claims. The term "forensic accounting" was first used in 1824 in Glasgow. Later, Frank Wilson, an accountant for the Internal Revenue Service (IRS), established the modern version of forensic accounting when he helped convict Al Capone of tax evasion in the 1930s. By the mid-1990s, forensic accounting had developed into a specialized area within accounting. In response to financial scandals, regulations began placing greater responsibility on CPAs to identify and prevent fraud (2U Wordpress, 2024). From 2018 to 2019, financial statement fraud accounted for 28% of global fraud cases, with total losses amounting to USD 42 billion (PricewaterhouseCoopers, 2020).

Alshurafat, Shbail, & Mansour (2021) concluded that forensic accounting is an emerging and vital discipline that plays an important role in combating financial fraud and supporting legal proceedings. Its multidisciplinary nature boosts the development of education and professional practice by providing individuals with a diverse skill set beyond traditional accounting. However, to reach its full potential, the field must overcome key challenges such as lack of regulatory oversight, inconsistent academic content, low barriers to entry, and a lack of

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standardized definitions and research. Strengthening the profession requires concerted efforts, including the establishment of professional bodies, clear qualification standards, unified curriculum, enhanced academic research, and increased public awareness. Through these measures, forensic accounting can develop into a more structured and influential field.

A cluster analysis conducted by Ellili, Nobanee, Haddad, Alodat, & AlShalloudi (2024) reveals six key research streams, which are governance fraud detection policies, international trends, the demand for forensic accountants, financial system reconstruction, educational strategies, and legal considerations. These research clusters provide a roadmap for future research, guiding efforts to strengthen both forensic accounting theory and practice. Overall, the analysis provides valuable insights into the evolving development of forensic accounting, highlighting current areas of focus and its global relevance. It draws attention to the critical role of ongoing research in promoting financial integrity and transparency.

Big Data Analytics

Big data refers to datasets that are so large, rapidly changing, and diverse that traditional tools struggle to process them. Big data analytics involves collecting and analyzing this data and using advanced tools to uncover patterns, trends, and insights. The main types of analytics used include descriptive, diagnostic, predictive, and prescriptive analytics (Ahamed, 2022).

According to Rawat & Yadav (2021), their research highlights the challenges of storing, processing, and analyzing big data, noting that a single machine is not enough and that distributed computing across large clusters like those in Google's data centers is essential. With 90% of current data generated in the past two years, and platforms like Facebook generating billions of data points every day, advanced methods are needed to extract meaningful insights. Big data can be structured, semistructured, or unstructured, with unstructured data accounting for approximately 95% of all data, further adding to the complexity.

Abdelhalim & Hassan (2025) explored how big data analytics influences risk management and sustainability performance in non-financial companies in Saudi Arabia, and they found that big data analytics significantly improves risk management, which in turn boosts sustainability outcomes. Different types of big data analytics have a positive impact on sustainability, even though their use is still developing in the region. However, advanced analytics require skilled talent and tools. Many supporting theories were discussed, such as organizational resilience, stakeholder theory, and institutional theory. It shows that integrating big data analytics helps companies make better decisions, reduce risks, and create long-term value.

H1: Computerized accounting systems have a significant impact on accounting practices.

Automated Accounting

Automated Accounting on Internal Control

Internal controls are policies and procedures established by management to ensure efficient operations, safeguard assets, prevent fraud and error, and ensure accurate financial reporting. Internal controls involve the board of directors, management, and employees and are designed to provide reasonable assurance regarding the reliability of financial reporting, legal compliance, and operational effectiveness (Muiruri, 2021).

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Hehanussa (2024) concluded that a well-designed internal control system plays a critical role in supporting the implementation and effectiveness of Accounting Information Systems (AIS). The successful operation of AIS depends not only on the adoption of appropriate technology but also on the reliability and integrity of internal controls. These controls must be enforced through strict oversight by competent management that possesses honesty and high ethical standards. Effectiveness is highly dependent on the presence of a trustworthy and well-functioning internal control framework.

Alzakwani and Matriano (2021) observed SMEs as they used computers to conduct their daily business transactions. However, the accounting software they utilized was often inexpensive and lacked the features necessary to support comprehensive financial management. The adoption of automated accounting systems has enabled SMEs to enhance their internal control practices, helping to prevent errors, theft, and fraud within their operations. The owners of SMEs frequently monitor their employees and daily sales, indicating that monitoring is a key element of internal control within SMEs. In contrast, security mechanisms are poorly executed due to financial constraints. The high cost of these security features often discouraged them from implementing security mechanisms like data encryption, firewalls and antivirus software.

Ashraf (2024) evaluated firms implementing automation in their financial reporting processes through analysis of mandated SEC disclosures and found that automation is significantly associated with a reduced incidence of material weaknesses in internal controls. Other than that, automation is linked to more timely financial reporting, fewer restatements, and a lower likelihood of investor litigation. However, the result also reveals a subtle but important consequence. Firms that adopt automation often exhibit reduced oversight, including less monitoring and decreased audit committee engagement. When internal control failures occur, the consequences may be more serious.

Automated Accounting and Efficiency of Accounting Practices

Automated accounting offers numerous benefits, including increased efficiency and accuracy by reducing human error and manual work. It can lower transaction costs, support lean accounting by eliminating non-value-added activities, and shorten reporting cycles to facilitate better-informed decision-making. Automation also provides access to real-time financial data, enabling faster responses to market and regulatory changes. This not only helps maintain stakeholder trust but also improves overall operational efficiency, making it a strategic tool for modernizing accounting processes (Rakibuzzaman, Tanvir, Reza, & Alam, 2025).

According to Smith (2018), automated systems have excellent performance on manual data entry in both speed and accuracy. Automation can reduce errors, streamline accounting processes, centralize information, and give advisors better insight into their work. This paves the way for a leaner, more efficient, and more effective accounting practice.

Time-consuming tasks are often seen as a sign of inefficiency within business operations and hinder overall productivity. When data needs to be gathered from various systems or departments, manual accounting processes can become particularly slow and time-consuming (Greenman, 2017). By automating routine procedures, tasks can be completed faster and more accurately, aligning with industry standards. In the present day, there are many automated accounting tools that often integrate seamlessly with other enterprise systems, such as inventory management, customer relationship management (CRM), and enterprise resource planning (ERP). This integration ensures that data flows smoothly between departments,

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improving consistency and data flow across systems. While automation is widely adopted in many organizations, numerous SMEs still rely on traditional accounting methods. While these companies may already have some IT support and limited automation in place, they often lag behind in fully adopting modern automated accounting solutions. Therefore, the idea that manual accounting will soon become obsolete is not accurate. SMEs have not yet achieved full automation, and human oversight remains essential. However, as AI-based systems become more affordable and accessible, even SMEs may experience significant changes in their accounting practices in the near future (Smoleń-Bojańczyk, 2024).

Automated Accounting And Client Relations

The role of accountants and finance professionals is undergoing a significant transformation as technologies such as artificial intelligence, robotic process automation, and blockchain drive automation in financial reporting. Their roles were originally focused on transactional tasks, such as bookkeeping, data entry, and routine reporting. These professionals are now shifting towards more strategic, analytical, and advisory functions. With the help of automation, accountants will have more time to focus on interpreting financial information, generating insights, and supporting key business decisions. Accountants are increasingly seen as trusted advisors who contribute to the long-term goals of the organization by providing meaningful analysis and strategic advice (Oladele, Litty, & Joy, 2025).

According to Amanda Aguillard, Chief Operating Officer (COO) of Padgett Business Services, clients don't hire an accountant just to crunch numbers; they want a trusted advisor who can help them run their business more efficiently. The speed and accuracy of financial reporting are critical as clients will be relying on accountants to provide strategic guidance and insights to grow their business. With the right technology, companies can provide clients with the timely insights they need to succeed. There are several ways to strengthen the client-advisor relationship, such as enabling firms to better support client operations, meet evolving data consumption needs, and deliver high-touch service. With integrated systems, accountants can provide timely insights that help clients optimize their operations. Automation saves time for deeper analysis, allowing accountants to present financial and non-financial data in a way that is easy to understand and act on. Ultimately, technology enables companies to proactively provide insights, simplify complex information, and deliver value without customers having to ask, thereby strengthening their role as an indispensable strategic partner (BILL, n.d.).

H2: Automated accounting has a significant impact on accounting practices.

Accounting Internet Technologies

Cloud

As cloud computing becomes more popular, businesses, especially SMEs and startups, are gradually moving from traditional storage systems to cloud-based accounting. This shift can enable real-time data analysis, faster report generation, and reduced operating costs. Cloud technology also empowers clients to manage basic financial tasks, allowing accountants to take on more strategic advisory roles (Khanom, 2017). By moving from local systems to centralized cloud platforms, organizations can simplify data sharing, improve reporting accuracy, and promote innovation. Other than that, cloud computing also supports international financial operations by providing flexible and convenient financial services to various stakeholders, including investors and regulators. In addition, multinational companies are supporting this transition through training and publicity programs to ensure that accountants are proficient in

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using cloud tools while complying with global standards and regulations (Wahhab, Alkhafaji, & Raji, 2024).

Phu, Thi, & Bich (2025) looked into the impact of cloud computing technology on cloud accounting adoption and financial management of businesses, and the study found that security and privacy, and system integration are the key factors affecting the adoption of cloud accounting. They also found that integration capabilities, especially with systems such as ERP and CRM, can improve operational efficiency and support real-time financial insights. In addition to that, cost-benefit analysis plays a crucial role in helping businesses adopt cloud accounting into their operations. It highlights financial advantages such as scalability and lower upfront costs that can make cloud computing an attractive option for their business. This reflects a pragmatic, efficiency-driven approach to technology investment.

Dlamini & Schutte (2025) found that SMEs in Zimbabwe rarely adopt cloud accounting into their operations because they lack of awareness, concerns over data security, cost implications, resistance to change, and lack of trust in cloud technology. Besides that, they face some challenges such as limited training, difficulties in data migration, technical issues, integration problems, and concerns about data accuracy. In order to increase the adoption rate of cloud accounting in Zimbabwe, they suggest that SMEs should invest in education and training on cloud accounting benefits and usage through workshops and expert guidance. It also urged the government to launch public awareness campaigns, strengthen digital infrastructure, especially in rural areas, and tighten data security regulations to build trust.

Blockchain

Blockchain is a decentralized ledger system that enhances accounting security, transparency, and efficiency. Key advantages include immutable records, easier auditing, streamlined reconciliation processes, and reduced costs through smart contracts, which automatically execute agreements without the need for intermediaries (Farea, Al-Ifan, Al-dubai, Bani Ahmad, Mohamed, & Hatamleh, 2024).

According to Donţu (2024), the current academic discourse on blockchain in accounting is still in the early stages, and much of the literature remains theoretical. While the benefits of blockchain technology are impressive, to fully realize these benefits, accountants need to upgrade their blockchain and data analysis skills. However, challenges such as technical limitations, data security, high implementation costs, and lack of empirical evidence remain. The researcher acknowledges the potential and limitations of blockchain and is cautiously optimistic about its long-term viability.

Bellucci, Damiano, & Manetti (2022) highlight how blockchain research in accounting has grown rapidly since 2018, forming clusters of interconnected academic work. Researchers identified three primary research clusters: accounting and auditing, cryptoassets and financial instruments, and business models and supply chains. In the first cluster, it supports accuracy, prevents manipulation, and enables real-time accounting. It can reduce repetitive tasks, eliminate reconciliation, and lower manual errors. In the second cluster, although the International Financial Reporting Standards (IFRS) guide the valuation of cryptocurrencies, audit and tax complications remain due to differences in regulations across countries. The third cluster highlights the transformative potential of blockchain in supply chain management, which can increase transparency, automation, and ethical oversight, especially in industries with complex or sustainability issues such as energy and environmentally sensitive industries.

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Artificial Intelligence

Artificial intelligence (AI) and machine learning are revolutionizing accounting by automating repetitive tasks, improving accuracy, and providing valuable insights. In recent years, the debate surrounding artificial intelligence (AI) has become very intense, and despite some negative portrayals in the media, many organizations are actively embracing it. Some research found that 75% of executives believe that AI will help companies expand into new business areas, and more than 80% believe that AI is key to gaining or maintaining a competitive advantage. AI has already had a significant impact on the business world by automating tasks such as data analysis, algorithm generation, and enhancing customer interactions (Ogaluzor, 2019).

Based on Friday and Japhet (2020), they believed that AI is expected to play an increasingly central role in accounting, aiding in tasks such as auditing, financial reporting, and tax compliance by 2030. While AI can outperform humans in certain areas, its limitations require effective collaboration between humans and machines. Major accounting firms are already adopting AI technologies to enhance their operations, such as PwC anticipates that 45% of global economic gains by 2030 will come from AI-driven product enhancements and personalized services; EY is establishing an AI Center in India to advance accounting capabilities; KPMG leverages technologies from McLaren Applied Technologies and IBM's Watson to strengthen audit processes; and Deloitte utilizes Kira Systems to improve assurance services. Overall, AI is rapidly transforming the accounting profession by boosting accuracy, efficiency, and the quality of services provided.

H3: Accounting internet technologies have a significant impact on accounting practices.

Research Gap

Oyeniyi, Ugochukwu & Mhlongo (2024) looked into Robotic Process Automation (RPA) in routine accounting tasks and its efficiency analysis. They focused on RPA, which is one form of automation, and primarily on efficiency. The broader effects of automation might be omitted, like on the job roles and strategic decision-making. Other than that, Taha (2021) investigated the effects of automation on employment opportunities and consumer satisfaction in the accounting department of Deloitte San Francisco. They focused on the employment and consumer satisfaction in Deloitte San Francisco, which is limited to employment and consumer aspects; how automation changes accounting processes or practices is not directly addressed. However, despite the existence of several studies that have explored the use of technology in business and accounting, there remains a conceptual gap in examining the impact of automation on accounting practices. This study aims to fill this gap by specifically examining this relationship.

Table 1: Summary Of Past Findings

Authors	Date of data collection	Sample	Dependent variables	Significant independent variables
Bradley (2025)	2024	60,000 households	Graduate students and professional accountants	Emerging technologies like artificial intelligence (AI), robotic process automation (RPA), blockchain, cloud computing, and machine learning (ML)

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Fajardo (2024)	2024	Published Articles and Academic Journals	Accounting profession and practices	Artificial Intelligence (AI) technologies
Muiruri (2021)	2021	152 accountants	performance of accountants	Computerized auditing, accounting automation and internet technologies

Conclusion For The Above Literature

The literature clearly shows that automation is reshaping the accounting profession through the adoption of advanced technologies such as computerized systems, big data analytics, artificial intelligence, blockchain, and cloud computing. The findings consistently indicate that these technologies improve efficiency, accuracy, and internal controls, enabling accountants to shift from manual, transactional work to more analytical and advisory roles. However, challenges remain, particularly for small and medium-sized enterprises (SMEs), including cost, resistance to change, and the need for digital skills and oversight. These findings suggest that, rather than eliminating accountants, automation is significantly transforming their roles.

Methodology

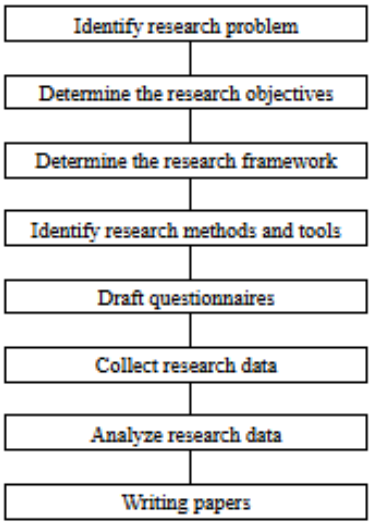

Figure 1: Flow Chart

Research Design

A quantitative research method was adopted for this study. Quantitative methods focus on standardized measurements and involve statistical, mathematical, or numerical analysis of data collected through polls, surveys, and questionnaires, or by analyzing existing statistical data using computational tools (Apuke, 2017; Rutberg & Bouikidis, 2018). Quantitative research is about collecting numerical data and generalizing findings to entire populations or explaining specific phenomena (Babbie, 2010). It is inherently closed-ended, aiming to elucidate relationships between specific, narrowly defined variables (Apuke, 2017; Rutberg & Bouikidis, 2018). A quantitative research method is well-suited to this study. Specifically, the study focuses on narrowly defined variables, such as computerized accounting, automated

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accounting, and accounting internet technologies, in relation to their impact on accounting practices.

Data Collection Method

The data collection for this research is through primary sources. The researchers used surveys and questionnaires to conduct this research as the researchers wanted to collect first-hand data from the target audience based on the research objectives. Google Forms were used to create an online survey questionnaire on the internet and collect data by distributing a set of questionnaires to the target audiences. Surveys and questionnaires can gather valuable insights and opinions to address research objectives or to understand the target audiences' perspectives. The data was the first-hand information gathered directly from the target audience, unlike secondary sources. The target respondents for this study were accounting-related professionals based in Klang Valley, selected due to the high concentration of accounting firms in the area, making it an ideal location for the research. The data collection process took place for 19 days, from 1 June 2025 to 19 June 2025.

Instrumentation And Data Analysis

The questionnaire was divided into five parts to investigate the impact of automation on accounting practices. Part 1 focused on accounting practices, particularly how they have evolved with the integration of modern technology. Part 2 explored computerized accounting, divided into three sub-sections: generalized accounting software, forensic accounting and big data analytics. Part 3 examined automated accounting and its influence on internal control, operational efficiency, and client relations. Part 4 investigated accounting internet technologies, which included the use of cloud accounting systems, blockchain technology, and artificial intelligence in accounting functions. Finally, Part 5 collected demographic information such as gender, profession, educational qualifications, and years of working experience to help contextualize the responses and identify potential patterns or differences across groups. Each section (except demographics) uses a six-point Likert scale ("1 = Extremely unlikely" to "6 = Extremely likely") to quantitatively assess perceptions and practices related to technological adoption in accounting.

Descriptive analysis, correlation analysis and regression analysis were used in this study (Jansen, 2024). Correlation and regression analyses fall under inferential statistics, which are used to predict what is expected to be found in the full population. SPSS was used to perform the descriptive data analysis as well as the inferential statistics. Descriptive analysis is a way of using statistics to summarize and describe the characteristics of a data set. It includes the use of measures such as mean, median, mode, standard deviation, frequency distribution, and percentages, which help condense large amounts of data into an easily understandable summary. This method provides a clear and concise overview of the data, allowing researchers to identify patterns, trends, and distributions to gain meaningful insights into the data set (Kumar, 2024). Correlation analysis was used to assess the strength and direction of the relationship between two variables. It can help researchers to understand how the variables are related and make predictions about one variable based on the behavior of another variable. A positive correlation indicates that if one variable increases, the other variable will increase as well. In contrast, if the correlation is negative, it means there is a negative relationship between the two variables (Senthilnathan, 2019). Regression analysis is a statistical method used to determine which independent variables affect the dependent variable. It can help the researchers to identify which factors matter the most and understand how these variables interact with one another. To conduct regression analysis, researchers need to define a

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dependent variable that is hypothesized to be affected by one or more independent variables (Gallo, 2022). Using the collected data, researchers plot all the variables on a graph and fit a line that best represents the relationship between them. This line is known as the "regression line", which will be the best explanation for showing the relationship between the dependent variable and the independent variable. Together, these methods provided valuable insights for interpreting data and making informed decisions.

Findings and Discussion

Table 2 provides an overview of the respondents' demographic data. Based on Table 1, there are slightly more female respondents than male respondents at 74 and 65, respectively. The majority of respondents hold positions as accountants or chief accountants (54%). In terms of the educational qualifications, it shows that most of the respondents have an accounting degree (46.7%). In addition, most of the respondents have between 1 to 5 years of work experience (53.3%). Table 3 shows the descriptive statistics, and it showed the top 3 highest mean values of each variable. It provided descriptive statistics on the minimum, maximum, mean, and standard deviation.

Table 2: Demographic Profile Of The Respondents

Variables	Frequency (N)	Percentage (%)
Genders		
Male	65	46
Female	74	54
Profession		
Accounting academic	46	33.6
Accounting officer / executive	9	6.6
Accountant / Chief accountant	74	54
Others	8	5.8
Educational Qualifications		
MICPA	3	2.2
ACCA	46	33.6
CIMA	3	2.2
CPA	13	9.5
Accounting degree	64	46.7
No accounting certificate	8	5.8
Years of Working Experience		
1 - 5 years	73	53.3
6 - 10 years	42	30.7
11 - 15 years	15	10.9
16 - 20 years	5	3.6
21 - 25 years	2	1.5

Source: SPSS

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Table 3: Descriptive Statistics

Descriptive statistics (Selected top 3 highest mean value)	Min	Max	Mean	Standard Deviation
Accounting Practices				
1.5 Automated alerts and controls have improved our compliance monitoring.	3	6	5.41	.723
1.4 Technology helps minimize human error in accounting processes.	3	6	5.37	.697
1.2 Technology has made it easier to meet accounting deadlines and reporting cycles.	2	6	5.34	.740
Computerized accounting system				
2.14 Investment in Big Data Analytics has enabled our organization to analyze large amount of data in a short time.	3	6	5.44	.695
2.9 The use of forensic accounting has led to a reduction in ICT-related fraud for our clients.	3	6	5.38	.719
2.8 Our organization's forensic accounting staffs have ICT skills, which has led to better handling of ICT-related fraud.	3	6	5.34	.712
Automated accounting				
3.8 The automated accounting system in place has enhanced timely completion of accounting work in my organization.	2	6	5.39	.770
3.13 The automated accounting system in place has increased the level of objectivity with our clients.	3	6	5.36	.794
3.11 The automated accounting system in place has improved our clients' relations.	2	6	5.31	.772
Accounting internet technologies				
4.15 Artificial intelligence has reduced the processing time of tax work.	2	6	5.37	.748
4.14 Artificial intelligence has enhanced efficiency in compiling tax returns.	1	6	5.33	.900
4.5 Cloud accounting has enabled accountants to work from anywhere and anytime.	2	6	5.29	.859

Source: SPSS

Table 3 shows that all variables recorded high mean scores, indicating strong agreement with the statements. The dependent variable, accounting practices, had mean values ranging from 5.20 to 5.41. Among the independent variables, computerized accounting systems ranged from 5.17 to 5.44, automated accounting from 5.12 to 5.39, and accounting internet technologies from 5.17 to 5.44. Overall, the results reflect consistently positive responses across all variables.

Table 4 shows the results of Pearson's correlation for each of the variables. When the p-value is less than 0.05, the correlation between the independent variable and dependent variables is significant (Hair, Black, Babin, & Anderson, 2009). The results show that there are statistically significant correlations between the dependent variable (accounting practices) and independent variables (computerized accounting systems, automated accounting, and accounting internet

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technologies), as all p-values are less than 0.05 (p = 0.001). This means that the chances of these correlations occurring by chance are very low. The results showed that there was a statistically significant strong positive correlation between the independent and dependent variables, with correlation coefficients ranging from 0.666 to 0.711. This indicates that an increase in the independent variable is closely related to an increase in the dependent variable (The BMJ, 2020).

Table 5, 6 and 7 are the regression analysis. Based on Table 5, the correlation coefficient (R) is 0.748, indicating a strong positive relationship between the dependent variable and the independent variables (Hair, Black, Babin, & Anderson, 2009). Other than that, the R-squared value of 0.560 suggests that 56% of the variance in accounting practices is explained by computerized accounting systems, automated accounting and accounting internet technologies. According to Table 6, a F-value of 56.46 and a P-value of 0.001 were obtained. Since the P-value is less than 0.05, it indicates that the regression model is statistically significant. Therefore, it can be concluded that the independent variables collectively have a significant effect on accounting practices. Table 7 shows that computerized accounting systems, automated accounting and accounting internet technologies obtained a p-value of .036, .017 and .001, respectively (Hair, Black, Babin, & Anderson, 2009). Overall, the results imply that all independent variables make meaningful and statistically significant contributions to the accounting practices.

Table 4: Pearson's Correlation Analysis

Correlations	Accounting practices	Computerized accounting system	Automated accounting	Accounting internet technologies
Accounting practices	1			
Computerized accounting system	0.666**	1		
Automated accounting	0.693**	0.762**	1	
Accounting internet technologies	0.711**	0.766**	0.809**	1

*Note: ** Correlation is significant at the 0.01 level (2-tailed).*

Source: SPSS

Table 5: Model Summary

Statistic	Value
R	0.748
R^2	0.560
Adjusted R^2	0.550
Standard error	2.40999

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Source: SPSS

Table 6: ANOVA

	Sum of Squares	df	Mean Square	F	Significance
Regression	983.779	3	327.926	56.461	< .001
Residual	772.469	133	5.808		
Total	1756.248	136			

Source: SPSS

Table 7: Coefficients

	Unstandardized B	Coefficients Standard Error	Standardized Coefficients Beta	t	Significance
(Constant)	8.392	2.762		3.039	.003
Computerized accounting system	.122	.057	.205	2.120	.036
Automated accounting	.136	.056	.256	2.427	.017
Accounting internet technologies	.175	.054	.347	3.257	.001

Source: SPSS

Hypothesis 1: Computerized Accounting Systems Have A Significant Impact On Accounting Practices.

In Table 7, a significant variance between accounting practices and computerized accounting systems was found as the significant value obtained was 0.036 ($p<0.05$) with t-value of 2.12. Therefore, the researchers can conclude that there is a relationship between accounting practices and computerized accounting systems; H1 is therefore supported in this study. The result of this current study is consistent with those of prior studies. For instance, Kanyanga (2022) proposed that the adoption of computerized accounting systems significantly increases operational efficiency, which enhances financial performance. Similarly, Chuwa (2024) and Itang (2021) claimed that technology and computerized accounting systems have a positive relationship in improving the performance of SMEs. These findings suggest that the adoption of computerized accounting systems can improve accounting performance in organizations.

Hypothesis 2: Automated Accounting Has A Significant Impact On Accounting Practices.

According to Table 7, a significant variance between accounting practices and automated accounting was found as the significant value obtained was 0.017 ($p<0.05$) with t-value of 2.427. Therefore, the researchers can conclude that H2 is supported in this study and that there is a relationship between accounting practices and automated accounting. The findings of this study are consistent with Chukwuani (2024), who observed that automated accounting

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automates repetitive processes, enhances fraud detection, and provides real-time insights, enabling accountants to contribute more to business growth, innovation, and improved decision-making. Similarly, Fernandez and Aman (2018) concluded that Robotic Process Automation (RPA) implementation provides significant impacts on individual organizational behavior in global accounting services, such as being able to provide higher quality and accuracy of work, thereby saving accountants' time. Hence, it can be surmised that the adoption of automated accounting will bring advantages to the company, employees, and their clients. Extending this perspective, (Rakibuzzaman, Tanvir, Reza, & Alam, 2025) found that automated financial reporting has significantly improved operational efficiency and responsiveness, especially in complex industries such as healthcare and manufacturing. Overall, the findings suggest that automated accounting not just increases efficiency, but it also transforms the traditional role of accountants, enabling faster, more accurate reporting and deeper strategic engagement.

Hypothesis 3: Accounting Internet Technologies Have A Significant Impact On Accounting Practices.

Based on Table 7, a significant variance between accounting practices and accounting internet technologies was found as the significant value obtained was 0.001 ($p<0.05$) with t-value of 3.257. Therefore, the researchers can conclude that there is a relationship between accounting practices and accounting internet technologies; H3 is therefore supported in this study. The findings of this study are also consistent with Hussin, Bukhari, Hashim, Bahari, & Ali (2024), who found that AI-driven tools can analyze large amounts of financial data, significantly improve processing speed and accuracy, and provide strategic insights that will benefit businesses by improving performance while allowing accountants to focus more on higher-level tasks such as decision-making and financial planning. Similarly, Odonkor, Kaggwa, Uwaoma, Hassan, & Farayola (2024) emphasize the importance of a balanced approach to AI adoption, highlighting the need for continuous learning, employee training, ethical considerations, and regulatory compliance to ensure trust and integrity in AI-driven accounting systems. Furthermore, Reslan & Maalouf (2024) reinforce this perspective by demonstrating that AI not only improves financial accuracy and fraud detection but also fundamentally changes core accounting functions.

Table 8: Summary of Results

Hypothesis	Significant P-Value	Results
Hypothesis 1: Computerized accounting systems have a significant impact on accounting practices.	0.036	Supported
Hypothesis 2: Automated accounting has a significant impact on accounting practices.	0.017	Supported
Hypothesis 3: Accounting internet technologies have a significant impact on accounting practices.	0.001	Supported

Source: SPSS

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Conclusion

The objectives of the study were successfully achieved. For objective one, the study found that automation and technology have become deeply integrated into daily accounting operations. The high mean scores for various automation and technology tools (ranging from 5.12 to 5.44) support the conclusion that these technologies are widely used in the accounting field. As for Objective 2, the findings indicate that automation and technology significantly enhance both efficiency and accuracy. The regression analysis (R-squared = 0.56) shows that 56% of the variance in accounting practices can be explained by the use of computerized accounting systems, automated accounting, and accounting internet technologies. The statistical significance of each variable (P-values ranging from 0.001 to 0.036) further confirms that these technologies improve efficiency and accuracy.

These advancements improve accuracy, efficiency, and decision-making. Essentially, the adoption of these technologies has not only improved the overall effectiveness and efficiency of accounting processes but has also redefined the accounting profession. Accountants are increasingly expected to use technology tools and data insights to provide strategic guidance, promote business growth, and support organizational innovation.

Implication

The study concluded that technology has not eliminated the need for accountants, but has redefined their role and expanded the scope of their responsibilities. As automation takes over routine tasks, accountants will find themselves performing jobs that require greater critical thinking, strategic engagement, and technical skills. The combination of human judgment and advanced technology will define the future of accounting, ensuring accountants continue to play a key role in business and financial decision-making. The future of accountants is likely to be a hybrid model where they continue to provide essential oversight and strategic direction, leveraging the benefits of technology while focusing on areas where human expertise and judgement are irreplaceable.

Contribution

This study contributes to the accounting field by highlighting how technological advancements are reshaping professional roles and client expectations. While technology will not replace accountants, it will transform their role from routine tasks to more strategic decision-making. To adapt to this change, it is important to develop data analysis and strategic thinking skills. It provides valuable insights into how firms can use innovation to improve service quality and remain competitive. The future of accounting lies in a hybrid model where automation works alongside human judgment, ensuring that accountants remain an integral part of corporate decision-making and keep the profession relevant.

Recommendations

It is recommended that every organization adopt computerized accounting systems, automated accounting, and accounting internet technologies to improve accuracy, reliability, and compliance with current standards. These systems can reduce human errors, streamline repetitive tasks, and provide timely financial data for faster decision-making. In addition, the use of internet-based accounting technologies can improve collaboration, accessibility, and data security, and enable real-time monitoring and remote work, making accounting processes more efficient and responsive. Also, further studies should be undertaken and consider extending the analysis specifically to large accounting firms in Malaysia that specialize in outsourced accounting and financial reporting services, such as YYC Advisors, Baker Tilly

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Malaysia, and TMF Group. This study can also be carried out to examine whether similar trends and outcomes are observed among large firms, thereby providing us with greater insight into the scalability and adaptability of technological advancements in the accounting industry.

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