IMPACTS OF DIGITAL TECHNOLOGIES ON ACCOUNTANTS' JOBS IN VIETNAM

Research dissertation presented in partial fulfilment of the requirements
for the degree of
MSc in Accounting and Finance Management

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Dissertation Supervisor: **Apostolos Dasilas**

Student Name: Phuong Thanh Vuong

4th September 2024

CANDIDATE DECLARATION

Candidate Name: **Phuong Thanh Vuong**

I certify that the dissertation entitled: **Impacts of digital technologies on accountants' jobs in Vietnam**

submitted for the degree of: **MSc in Accounting and Finance Management** is the result of the my own work and that where reference is made to the work of others, due acknowledgment is given.

Candidate signature: 

Date: 4th September 2023

Supervisor Name: Apostolos Dasilas

Supervisor signature: ADasilas

Date: 4th September 2023

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ABSTRACT

The study investigates the impact of digital technologies on accountants' jobs in Vietnam, specifically whether the adoption of digital accounting contributes to accountants' success. The study employs a quantitative approach by using a survey data-gathering method integrating inferential statistics such as cross-sectional regression analysis to arrive at evidence-based findings. As a result, in this study, it was shown that Big Data Analytics ("BDA") and Cloud computing are the digital technologies that have the most significant impact on accountants' jobs in Vietnam. Notably, BDA adoption in accounting could lead to authenticity issues that might affect the data analytics quality and accountants' financial strategy. Besides, cloud computing adoption might also result in data security matters among accountants in Vietnam. The result of this study contributes to the accountants' success in general since it alerts them on the high-impact digital technologies and identifies the digital matters that accountants shall concentrate on in the current digitalisation era.

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LIST OF ABBREVIATIONS

Abbreviation	Definition
AI	Artificial Intelligence
AI1*	In my experience, AI eliminates some of my previous repetitive tasks
AI2*	In my experience, AI can do some of the basic accounting tasks on behalf of me.
AI3*	In my experience, AI can do some of the high-level tasks requiring objective judgement and accumulated experience on behalf of me
AI4	I believe that in the future, AI can replace accountants
ANOVA	Analysis of Variance
ASEAN	Association of Southeast Asian Nations
BC1*	In my experience, blockchain makes assurance on data verification
BC2*	In my experience, blockchain can support to avoid data manipulation
BC3*	Sometimes, blockchain raises concerns about confidentiality
BDA	Big Data Analytics
BDA1*	In my experience, BDA supports me to get real time data
BDA2*	I find it hard to control BDA since it is complicated
BDA3*	Sometimes, BDA raises concerns about authenticity
BDA4*	I believe that in the future, BDA can replace accountants
CC1*	In my experience, cloud computing makes assurance on the most updated data
CC2*	In my experience, cloud computing creates a collaborative working environment regardless of geographical locations
CC3*	In my experience, cloud computing improves data security (i.e. data backup/ disaster recovery)
CC4*	In my experience, cloud computing causes some challenges such as data privacy compliance regulations
CFO	Chief Financial Officer
DEP	Dependent variable
GDP	Gross Domestic Product
IoT	Internet of Things
SMEs	Small to medium enterprises

*Independent variables

1. INTRODUCTION

1.1. Overview

In recent years, people have seen dramatic changes in how accountants work as a result of the speeding technological advancements, globalisation, easily connected communication via the Internet, and amendments in relevant rules and regulations (Kroon *et al.*, 2021). Particularly, technologies are now significantly integrated into the accounting industry and thus, most accounting and financial activities cannot be completely undertaken without them (Damasiotis *et al.*, 2015).

Research proved that using digital technologies (i.e. Blockchain, Artificial Intelligence ("AI")) can enhance accountants' working efficiency by supporting them in accessing previously unprocurable data in real time, improving data output quality by providing better timeliness and accuracy, and boosting information assurance for greater decision-making processes (Tsiligiris and Bowyer, 2021). Besides, technological advancements also significantly relieve most accountants' repetitive, manual-based and time-consuming tasks (Imene and Imhanzenobe, 2020), allowing them to concentrate more on tasks demanding their critical thinking, innovativeness, further transferable skills, and more connection with their clients for better value-added services (Gulin *et al.*, 2019a).

In summary, the fast pace of technological innovation has created a major change and nearly shifted the accounting world from manual-based to digitalisation which might be challenging to current accountants (Hasin *et al.*, 2022). According to World Economic Forum (2023), within 5 years from 2023 to 2027, more than 80 million jobs are forecasted to be destroyed by automation, and nearly 70 million ones are expected to be generated, meaning that the employment market will lose about 14 million jobs. Noticeably, accounting is one of the most vulnerable sectors in the current digitalisation era as evidenced by the number of the projected largest accounting-related job loss within the next 4 years, for example, data entry clerks (around 8 million), administrative and executive secretaries (around 5.8 million), and accounting, bookkeeping and payroll clerks (around 4.5 million) (World Economic Forum, 2023). Understandably, these jobs are mostly manual tasks and could be easily replaced by digital technologies like Artificial Intelligence ("AI"), and it is not hard to conclude that new jobs are expected to be created according to the World Economic Forum's employment report in 2023 will be tech-related due to the fall in manual tasks and the rise of technological development.

This is not only a warning sign but also opens room for the accountants to change their mindset on new data and improve their working ways to keep up with the quick pace of technological evolvement and not be left behind (Kroon *et al.*, 2021). Companies are now looking for ways to optimise their costs and improve efficiency by utilising digital technologies in the accounting sectors (Ali Qadir, 2018), thus, not only accountants nowadays should build up their tech skills in adapting to new digital innovations but also boost their knowledge-demanding tasks. For instance, following a report from Deloitte (2017), jobs having a lower chance of replacement are *"financial managers and directors, and business & financial project management professionals"* (Deloitte, 2017).

In response to these challenges, professional accounting bodies have implemented competency frameworks and reports on accounting future profession to overcome the difficulties and seek potential opportunities following the emergence of digital technologies (Kroon *et al.*, 2021). Moreover, the AACSB 2018 accounting accreditation standard A5 suggests integrating information technologies skill development into accounting graduate programmes (Kroon *et al.*, 2021). Therefore, it could be seen that knowledge and hands-on experience in technologies have gradually become common in every aspect of the professional world, and accounting is not exceptional.

Besides the numerous benefits technologies bring to the accounting sector, researchers also observed several issues from technological development. According to Teru *et al.* (2019), although technologies help to enhance data confidentiality (i.e. by using security passwords), they might also cause data security matters if the data is insolvably deleted, lost or even stolen by other parties. Moreover, most technologies require high broadband Internet infrastructure to maintain speed and updates in case there are any changes while adopting technologies during the accounting process. Usage of technologies also requires special training, which might take further time and financial resources of modern organisations.

Furthermore, the adoption of technologies also raises concerns about the decline of information quality and the trustworthiness of the people being *"involved in its preservation and transmission"* (Kovalevska *et al.*, 2022). Consequently, it is doubted that machine-driven and automated decision-making depending on less manageable and externally generated data will replace human judgment which was previously applied in traditional accounting (Agostino *et al.*, 2022).

Researchers also highlight that the process of digitalising the accounting system might take a large amount of time, money, and labour costs in order to fully transform a business, improve it to meet the digital standards, and maintain it by constantly analysing the digitalisation performance measurements (Kovalevska *et al.*, 2022). Other issues relevant to digitalisation include quick technological advancements, inadequate legal regulations, neglection of human capacity, and duplication (Stefanovova *et al.*, 2020). These matters could be solved by efficient strategic governance, highly skilled staff, detailed analysis of business needs for digitalisation and an effective plan to raise the possibilities of digitalisation effectiveness (Kovalevska *et al.*, 2022).

However, although small and medium-sized enterprises ("SMEs") are considered adaptive, flexible and innovative, they might find it more difficult than large enterprises as the accounting digitalisation transformation of these business models is more complicated and requires investment in financial, talent and other resources which might become obstacles for such enterprises. Researchers also note that if the digitalisation of a business is not successful, the consequences are even worse since there might be financial losses, loss of customers, values, competitiveness, and other stakeholders, and finally, business termination (Kovalevska *et al.*, 2022). Therefore, it could be seen that accounting digitalisation gradually become indispensable in businesses, however, the problem is that accountants nowadays must build up their skills not only to get them familiar with the functions of accounting digital technologies but also to be well prepared to cope with any challenges in any phases of the digitalisation, and some accountants might need to take more efforts, especially in SMEs since they have fewer resources.

One of the developing economies among The Association of Southeast Asian Nations ("ASEAN") that has been noticed for the early willingness in digitalisation in recent years is Vietnam (Tam and Huong, 2018). However, in August 2020, according to the Association of Small and Medium Enterprises in Hanoi, approximately 90% of enterprises were willing to transform to digitalisation, nonetheless, only 40% of these businesses were ready to make investments because of some reasons such as lack of skilful employees, facilities, financial resources, and digital mindsets (Quynh, 2024).

In response to the challenges that SMEs might face throughout their digitalisation process, the Vietnamese Government is implementing some supporting policies and programmes both in-cash (i.e. financial aid) and in-kind (i.e. training and consulting) and has received some positive results

(Agency for Enterprise Development, Ministry of Planning and Investment, Vietnam, 2024). Particularly, following "2023 Annual Report on Vietnamese Enterprises' Digital Transformation" from Agency for Enterprise Development, Ministry of Planning and Investment, Vietnam (2024), the digital readiness score in "financial management, accounting, planning, legal & HR management" – one of seven core aspects of Vietnam enterprises rose significantly in 2023 compared with 2022, which is from 2.8 (Developing stage) to 3.1 (Progressive stage) in the score range from 1 to 5.

However, although the number of SMEs in Vietnam is proportion to more than 97 percent of the total enterprises nationwide, they are more vulnerable to any factors affecting their operating activities due to limited labour and financial capital (General Statistics Office of Vietnam, 2023). Therefore, the problem is that during the digitalisation era, especially in the accounting sector, how the digital technologies that accountants in such enterprises in Vietnam (mostly SMEs) are using impact their daily jobs (whether more positively or negatively), from then evaluating the necessity for each type of digital technologies in the current era, and finally, identifying the skills accountants can improve now and should prepare in the near future. Given there has been limited academic research on this field, this study is implemented to fill the research gap.

1.2. Research Purpose

This research aim is to explore the correlation between the adoption of digital technologies and the accountants' jobs in Vietnam in modern accounting practice.

1.3. Significance of the study

Digital accounting has now become an international trend for most nations to stay competitive in the global interconnection period. Therefore, Vietnam – a developing country in Southeast Asia also does not be left behind by showing its digital readiness in the early stage (Quynh, 2024). However, researchers observe that Vietnam might find it challenging to adopt digitalisation because of restricted resources such as a shortage of staff expertise, finance resources, infrastructure, digital thinking (Quynh, 2024) and technical issues (Binh and Phuong, 2020). Given there is limited existing academic research on the relevant field, a study on the impact of digital technologies on accountants' jobs in Vietnam is needed to fill the research gap. The study is beneficial to the parties who are indirectly or directly involved in the accounting field (i.e. accounting students and graduates, faculty, researchers, accounting professionals, etc.). The study's outcome will figure out the impact of digital technologies on accountants' jobs in Vietnam, and explore the areas accountants shall concentrate on in order not to be outdated in the current digital era.

1.4. Research Objective

The objective of this research study is to examine whether the application of digital technologies in the accounting industry in Vietnam impacts accountants' work in Vietnam and identify the specific digital factors that accountants should concentrate on in the current digital development era in Vietnam.

Research question: How do digital technologies impact accountants' jobs in Vietnam?

1.5. Structure of the Study

The study includes five main parts. The first section is Introduction which will give a broad background overview and problem that the study explores. The second section is the Literature Review which will list the existing academic research in relation to the study matters (i.e. how the

digital technologies impact accountants' jobs) and explain how the study will fill the research gap. Then the third section – Methodology and Research Design will specify the quantitative research methodology applied to the research study. The fourth section – Presentation and discussion of the findings will describe how the research analyses the primary data and the results obtained. Finally, the last section - Concluding thoughts on the contribution of this research, its limitations and suggestions for further research will give details of the study reflection.

2. CRITICAL LITERATURE REVIEW

2.1. Overview

Vietnam is considered as one of the earliest nations in ASEAN showing digital readiness, especially in the Accounting and Finance sector. However, the country still finds it struggling to effectively utilise the adoption of digital technologies because of restricted resources (Quynh, 2024). Going parallelly with the fast pace of digital advancements is the high expectation of clients and other stakeholders in accountants' technological skills (Imene and Imhanzenobe, 2020). Therefore, accountants in Vietnam now shall upskill the relevant expertise and be well aware of the impact of digital technologies being adopted on their jobs in order not to be outdated. Given there is limited existing academic research on this field, this study is conducted to fill the research gap.

2.2. Contextual Literature – Digitalisation in Accounting in Vietnam

The Fourth Industrial Revolution, according to the World Economic Forum, is defined as "*the advent of "cyber-physical systems" involving entirely new capabilities for people and machines … the Fourth Industrial Revolution represents entirely new ways in which technology becomes embedded within societies and even our human bodies. Examples include genome editing, new forms of machine intelligence, breakthrough materials and approaches to governance that rely on cryptographic methods such as the blockchain*" (Davis, 2016). This new revolution has strongly impacted all sectors, including but not limited to the accounting areas. Notably, the giant advancement of the Internet of Things ("IoT"), Blockchain, Artificial Intelligence ("AI"), Big Data and so on have opened several doors for businesses to transform their business models, enhance corporate governance, and create more value for the organisations. Therefore, accountants must now change the way they perform their daily work, especially in organising and providing information to the stakeholders (Quynh, 2024).

Since digital accounting has become not only a global trend but also a key factor in any nation during the international interconnection and highly severe competition, Vietnam – one of the ASEAN countries showing its digital readiness in an early stage also not let it left behind this trend (Quynh, 2024). Vietnam is evaluated as one of the economies in ASEAN with the highest digitalisation growth rate of nearly 40 percent per year. In 2019, the value of Vietnam's digital economy was USD12 billion, accounting for 5 percent of the nation's Gross Domestic Product ("GDP"), and four times larger than in 2015 (Binh and Phuong, 2020).

However, a survey conducted by the Association of Small and Medium Enterprises in Hanoi in August 2020 showed that although nearly 90 percent of enterprises were attracted to digital transformation, only 40 percent of them were ready to make investments in digitalisation activities (Quynh, 2024). Besides, following Vinh (2024), in Vietnam, around 48.8 percent of enterprises have used to apply some digital solutions however currently on hold for being unsuitable, lacking of appropriate digital plan, or qualified staff. In which, accounting practice is one of the sectors having significant digitalisation usage with more than 40 percent of enterprises using technologies at a high and usual level of adoption frequency. However, there are still about 33 percent of enterprises still

do not know how to utilise technologies although the accounting market has many digitalisation suppliers to support them. This could be explained by some reasons such as limited staff qualifications, facilities, finance, digital intelligence (Quynh, 2024), and technical matters (Binh and Phuong, 2020).

Being fully aware of these challenges, the Vietnamese government has issued some policies and conducted programmes to support Vietnamese enterprises on their ways to digital transformation. For instance, the programme "Supporting enterprises' digital transformation from 2021 to 2025" being approved by the Minister of Planning and Investment on 07 January 2021 with several supporting activities (i.e. building knowledge, training, expanding the network, consulting and solution support, and communication) have brought some positive output. From the same report - "2023 Annual Report on Vietnamese Enterprises' Digital Transformation" from the Agency for Enterprise Development, Ministry of Planning and Investment, Vietnam (2024), in general, the digital readiness score of Vietnamese enterprises in the area of *"Financial management, accounting, planning, legal and HR management"* has risen dramatically from 2022 to 2023, specifically from 2.8 (Progressive level) to 3.1 (Advanced level) from the score range from 1 (Basic level) to 5 (Leading level).

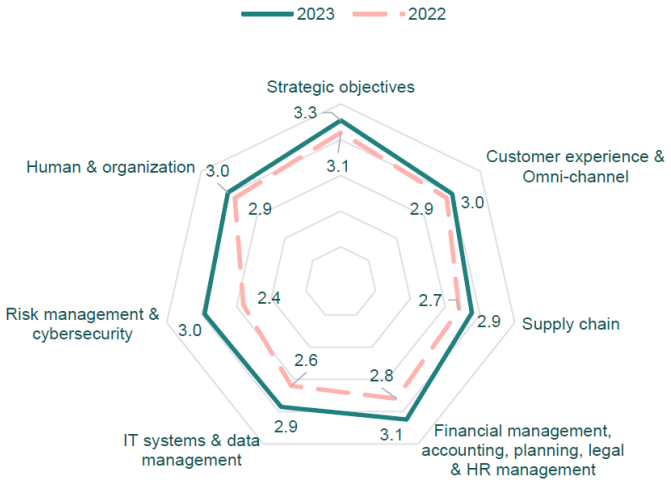

Figure 1. The overall digital readiness level related to 07 core functions of Vietnamese enterprises (Agency for Enterprise Development, Ministry of Planning and Investment, Vietnam, 2024)

Specifically, industries such as *"Education, Professional and scientific activities, Accommodation and F&B, and Logistics & Warehousing"* observed a significant rise in digital readiness in 2023 compared with the last year. Particularly, the Education field ranked the top in the digital readiness list in 2023 beyond all other sectors, with the digital readiness score rising from 2.4 (Progressive level) in 2022 to 3.8 (Advanced level) in the function of *"Financial management, accounting, planning, legal and HR management"*. One of the reasons - the Covid-19 outbreak could explain this since during the pandemic, the offsite classes nearly had to be suspended and replaced by online ones, meaning that the Education sector must transform to digitalisation, possibly including other functions such as Accounting and Finance. In contrast, the "*Manufacturing and processing industry"* indicated nearly no increase after a year with a result of 2.9 (Progressive level). This could be because of insufficient funding in facilities, machines, and equipment for digitalisation (Agency for Enterprise Development, Ministry of Planning and Investment, Vietnam, 2024). Therefore, it could be seen that the

enterprises' industry digital readiness level might also affect accountants' jobs in Vietnam and their preparation for the next level of digitalisation.

Following Agency for Enterprise Development, Ministry of Planning and Investment, Vietnam (2024), top digital technologies of Vietnamese enterprises in the current years will be *"Cloud computing, the Internet of Things ("IoT"), Artificial Intelligence ("AI"), and Cybersecurity".* Notably, in 2022, regarding Cloud computing, Vietnam ranked 53th out of 76th worldwide in the ranking of the Cloud Ecosystem Index. This technology is significantly adapted in numerous key fields, especially Finance and Banking. Binh and Phuong (2020) also have pretty the same record when they mentioned that some key pillars of digital transformation in Vietnamese enterprises are Cloud computing, 5G mobile network, and the Internet of Things ("IoT"). In Accounting field only, (Quynh, 2024) lists out digital accounting development trends in Vietnam including automating accounting processes, accounting software, cloud-based accounting, etc.

Nonetheless, following an article from General Statistics Office of Vietnam (2023), although the proportion of the number of SMEs in Vietnam accounts for 97 percent of the overall enterprises, they are more at risk of being disrupted by any factors impacting their operation because of restricted workforce and finance sources. Hence, the matter here is that throughout the period when digitalisation is nearly indispensable for all enterprises for their existence, especially in the accounting sector, how the digital technologies being applied in the accounting function of these businesses change accountants' jobs in Vietnam, the necessity of each type of digital technologies in the current era, and the skills these accountants shall improve and prepare in the near future.

2.3. Conceptual Literature

2.3.1 Accountants' jobs in pre- and post-digital technology era

Historically, accountants' jobs were entirely manual-based. The accountants were responsible for obtaining and maintaining the accounting records in financial transaction files. These files were often revised and amended manually following the changes in enterprises' transactions and events. When the accounting period ends, all the books would be closed, and then the accountants would prepare the financial statements and make them available to the stakeholders. This manual accounting process results in several disruptions for the accountants such as repetitive manual adjustments, delays in the preparation of periodic reports, a large number of files resulting in complex record keeping, and errors and misstatements (Imene and Imhanzenobe, 2020).

Nowadays, nearly all the accountants' tasks regarding the accounting and financial reporting process have been automated (Ifeanyichukwu, 2019) (Imene and Imhanzenobe, 2020). In particular, several accountants' manual tasks have been simplified by digital technologies. Throughout recent years, researchers have observed that digital transformation is greatly beneficial since it improves accounting information and financial reporting quality, hence improves the decision-making process (Phornlaphatrachakorn and Kalasindhu, 2021). Digitalisation also has a significant impact on the accounting sector, *"from memorising, classifying, and summarising to analysing and discussing financial statements, establishing the system, and ensuring the effective continuity of the system"* (Parlak, 2020). Furthermore, digital transformation also supports accountants in the amount of effort in the accounting work, and thus, accountants could concentrate more on improving product quality and enhancing enterprises' competitiveness and positions (Tuan *et al.*, 2021). In other words, digital technologies have nearly eliminated time-wasting tasks (i.e. invoicing) and traditional

accounting procedures, giving accountants time to create more value for the clients which lessens the money and time spent on certain tasks. Future auditors will also have more time to spend on analysing the results instead of taking many wasteful hours to obtain data from the financial statements. Besides, there will also be high-level platforms to identify frauds and associated risks during the auditing process. However, digitalisation also raises concerns regarding the fact that it might threaten the information quality, thus it might cause more complexity for the organisation (Perdana, 2024). Moreover, digitalisation requires a significant amount of investment in the skillset and financial resources (Kovalevska *et al.*, 2022).

Therefore, to utilise the opportunities and to cope with the challenges of digitalisation in accounting, now people (including clients and other users of financial statements) expect a new generation of accountants to be technology-driven accountants. Hence, accountants are anticipated to be more open to technological ideas, invest in the technological profession, work closely with experts in technologies, and be conscious of cyber security – one of the most popular matters of digital technologies (Imene and Imhanzenobe, 2020). Although digitalisation might threaten some manual accounting jobs, new digital solutions such as Big Data Analytics also open opportunities for accountants, despite some challenges they might cause during the accounting procedures (Perdana, 2024).

Furthermore, with the continuous usage of digital technologies, it is foreseen that a large proportion of medium and low-skilled jobs will be diminished in the near future (Perdana, 2024), accountants now shall proactively seek to expand their services such as business advisory which they are expected to bring more added value ideas to the clients (Blackburn *et al.*, 2010). Following Nixon (2016), in 2020, the total earnings of the Big Four accounting firms were USD157 billion, it is anticipated that 80 percent of their future revenue will be from the advisory services. Hence, it could be seen that clients have a higher demand for high-skilled tasks from accountants shortly.

2.3.2 Digital technologies in accounting

Digital technologies include data, communication, computing and connectivity technologies. Particularly, digital technologies integrate everything such as organisations, humans, physical goods or facilities, software, etc. to obtain information and data, exchange internally or externally, and get an insight into that information or even process that information like a human in real-time. In other words, they integrate *"social, mobile, analytics, cloud, internet, internet of things ("IoT"), software, platform, artificial intelligence, blockchain"*, etc. (Busulwa and Evans, 2021). Top common digital technologies in accounting nowadays include Big Data analytics ("BDA"), Artificial Intelligence ("AI"), Blockchain, and Cloud computing (Huy, n.d.), (Pereira *et al.*, 2023), (Zhang *et al.*, 2023), and (Gulin *et al.*, 2019b).

a. Big Data Analytics ("BDA")

Big Data Analytics is defined as *"the methods, tools, and applications used to collect, process, and derive insights from varied, high-volume, high-velocity data sets. These data sets may come from a variety of sources, such as web, mobile, email, social media, and networked smart devices. They often feature data that is generated at a high speed and varied in form, ranging from structured (database tables, Excel sheets) to semi-structured (XML files, webpages) to unstructured (images, audio files)"* (Microsoft Azure, n.d.). The five features of Big Data are performed in the figure below:

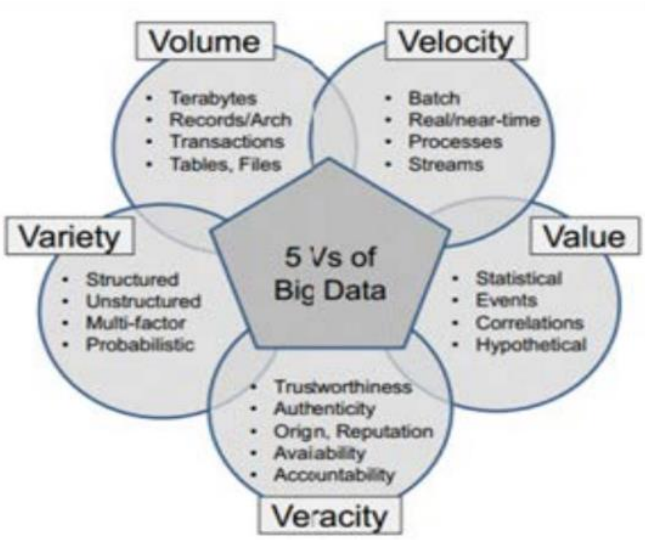

Figure 2. Characteristics of big data (Ramadan, 2017)

According to Lindell (2020), from accountants' perspectives, Big Data could be stored in spreadsheets. Historically, accountants accounted, processed, analysed data, and reported on the financial outputs. Accountants could create more value by analysing results through ratio analysis and made comparisons among the industry. However, since there has been so much data becoming overwhelming, spreadsheets are more widely used, and thus some database applications have become much more powerful. In 2018, nearly 80 percent of Chief Financial Officers ("CFO") evaluated Excel usage skills as the most significant skill. Nonetheless, after two years, only 7 percent of CFOs considered Excel proficiency as desirable. Hence, accountants now observe the fast pace of BDA developments such as Power BI, Tableau, Qlik, etc.

Nonetheless, following Lindell (2018), nowadays people expect CFOs to be strategic business partners in the enterprises. Specifically, BDA has been proven to support CFOs in the following tasks:

(i) Using information-driven planning to make forecasts on multiple-year plans of the business;
(ii) Identifying and minimising business risks and frauds;
(iii) Analysing advanced financial and managerial analytics for periodic booking, statutory reporting, and variance analysis;
(iv) Insightful scorecard;
(v) Making new insights on previously impossible analyses of certain financial information; and so on.

b. <u>Artificial Intelligence ("AI")</u>

AI is defined as:

> *"a computer programme or software application that can imitate or simulate human behaviour"* (Saxena, 2024)
>
> *"the capability of a computer system to mimic human-like cognitive functions such as learning and problem-solving"* (Microsoft Azure, n.d.)

AI has been observed to remove accountants' repetitive tasks, therefore it might threaten the need for accountants in the future. However, some researchers foresee that AI is a cost-saving solution to enhance accountants' working efficiency.

Regarding some AI applications in accounting, according to Saxena (2024), it could be seen that AI has been more and more widely adopted in all areas of accounting. Specifically, in auditing, EY uses AI to conduct inventory counts with more correctness and productivity while Deloitte uses an AI tool named "Argus" to draw out important accounting information from any electronic file type. In management accounting, accountants use AI to perform accounting entries, anticipate revenues, and analyse unstructured data like emails or contracts. Burns and Igou (2019) recommends accountants utilise smart virtual assistants to link AI solutions to perform some tasks requiring human commands such as audit analysis, data restoration, spreadsheet formation, and data visualisation.

c. <u>Blockchain</u>

Blockchain is defined as:

> *"a database that contains a history or whatever information it is designed to store, consisting of a series of information "blocks" built on top of one another in an immutable chain… What differentiates a blockchain from other databases is that its ledger is distributed, publicly available, and replicated across thousands of computers or "nodes" worldwide. As such, blockchain technology can be used to create immutable ledgers to track orders, payments, accounts, and other transactions. The system has built in mechanisms to prevent unauthorised transaction entries and create a consistent shared view of transactions."* (Sutopo, 2023)
>
> *"a record-keeping and contract-enforcement technology that uses cryptography to make it difficult to change previous history. It allows participants to share workstreams by tracking changes on a shared ledger."* (Microsoft Azure, n.d.)
>
> *"Blockchain is simply a database that is distributed among a community of members, meaning that all the participants work together to maintain the log of entries…Unlike in a traditional ledger system, there is no node with special rights to edit or delete transactions, in fact there is no central party at all. One of the situation in which blockchains can be useful is when a trusted central party is either unavailable or too expensive."* (ICAEW, n.d.)

Hence, it could be seen that blockchain brings a connected entry bookkeeping system without the need for an independent third-party verification (ICAEW, n.d.). According to Pugna and Duţescu, (2020), the main characteristic of blockchain is reforming the accounting information system through universal propagation (all members have alike ledger copies, nobody has a control on it and there is a fast propagation of new entries in the network), immutability (cannot modify without agreement) and programmability (through smart contracts).

d. <u>Cloud computing</u>

Cloud computing is defined as *"the delivery of computing services—including servers, storage, databases, networking, software, analytics, and intelligence—over the internet ("the cloud")"* (Microsoft Azure, n.d.). Cloud computing is considered as a fast and flexible innovation offering economies of scale. Businesses only need to make payments for the cloud services supporting to

relieve their costs, employ the facilities more effectively, and expand business scale if they change. In accounting, cloud computing simplifies accounting information sharing and removes the need for bulky files and hardware expenditures. Besides, this digital technology type allows people from different businesses to work on the same projects together and minimises compatibility or security matters since *"everything is stored on a server somewhere else in cyberspace"* (Inaa Group, 2023).

2.4. Empirical Literature – Impact of digital technologies on accountants' jobs

2.4.1 Big Data Analytics ("BDA")

According to Herath and Woods (2021) who used a qualitative research study conducted in the USA found that BDA significantly improves accounting decision-making and risk analytics. In particular, BDA supports accountants in getting access to the data in real time so that accountants can figure out the issues more proactively. Nowadays, instead of purely being based on periodic financial reports, accountants now can utilise real-time data from numerous sources (including unstructured data) to analyse financial data and identify the financial risks which better support the businesses' economic decisions. However, the researchers also observed some challenges that BDA might cause accountants. Specifically, businesses might find it hard to store and sort out giant amount of Big Data. Big servers are considered costly and one of the common solutions in the accounting practices currently is using a distributed file server. Another challenge is the complexity of Big Data. Numerous organisations could not adopt BDA due to some obstacles due to the fact that they lack data (quantity), get outputs of irrelevant data from a controversial source, or do not have enough proficiency in information extraction (accessibility).

Another qualitative study is also being performed in the USA from Farooq Aziz (2023) also has the same view about the opportunities and challenges that BDA brings to accountants' jobs in the current digital era. Notably, BDA helps accountants make informed financial decisions and get access to global issues resulting in sustainability and management. For the challenges of BDA, the researcher explained them linked with the characteristics of Big Data. Firstly, velocity. It connects with the accounting system's speed and capacity. Sometimes, the accounting system is not aligned with the regular financial transactions since the businesses could not handle managing the high velocity of Big Data. Secondly, value. Sometimes, BDA could cause complexity to businesses as it may give out new statistics or new events requiring statistical testing before a situation's decision is made. Thirdly, veracity. While utilising information from different sources, there could be risks of authenticity and trustworthiness that might affect the quality of data analytics and the ultimate financial decisions. Accountants are advised to incorporate different BDA tools to find the most optimal solutions for the accounting department. However, this way could take more resources (i.e. time, money and expertise) for the businesses. Lastly, volume. Businesses might find it highly complex under the pressure of high data volume making it harder to control the Big Data. Besides, a situation with unavailable and insufficient data might reduce the efficiency of BDA during the accounting decision-making.

A different quantitative study in Thailand from Wongsim *et al.* (2019) using a questionnaire with 213 surveyed participants in two Thailand organisations about the variables that might impact accounting in BDA gave other notable points. In which, the researcher showed five fundamental factors to maintain BDA in accounting including strategic information technology, commitment of management, BDA skills improvement, technology ability, and competitive environment. However,

these are mostly the factors affecting BDA in accounting system not in the reverse side that factors impacting accountants' jobs.

In overall, it could be seen that regarding the impact of BDA on accountants' jobs, most existing academic research has the same page about the opportunities and challenges that BDA brings to the accounting world. In particular, BDA supports accountants to get access to real-time data that ultimately strengthens the financial analysis and risk management process. However, accountants might find it hard to control Big Data due to some reasons such as complexity, risks of authenticity, and trustworthiness matters that might impact the data quality. It could be evaluated that since most of these academic research articles about the impact of BDA in accountants' jobs are conducted in the USA – a country with a high market share in BDA solutions accounting for 50 percent (Howarth, 2024) and they are mostly published in recent years, the findings could be similar. However, it is not guaranteed that the findings are the same in some developing nations like Vietnam. Therefore, the author identifies the research gap on this matter.

2.4.2 Artificial Intelligence ("AI")

Following Li *et al.* (2020), AI replaces basic accounting work, makes accounting practice more automated, correct and data authentic, and gives financial data for enterprise decision-making. Specifically, in the USA, the occurrence of the Sharing Service Centre ("SSC") – an AII solution helps accountants avoid the repetitive work that previously accounted for approximately 30 percent of the total working hours of a full-time staff. If an enterprise has 40 full-time accountants that applies SSC to their work, it is demonstrated that the yearly saving hours and costs are 25,000 hours and USD878,000 respectively (Press, 2019). With the advantages AI brings to accountants, people have seen widespread SSC adoption worldwide in recent years. Particularly, from 2014 to 2018, the proportion of organisations saying they have SSC rose from 50 percent to 67 percent. In Europe, the figures were doubled within these 4 years (Dement and Robinson, n.d.). Hence, it could be concluded that the usage of financial automation and the advancement of SSC will gradually become common and replace some basic work of accountants, such as those relevant to procurement, payment, budget, etc. Furthermore, following (Watson, 2024), AI is observed to enhance enterprise operations to accomplish better productivity, accuracy, and cost-effectiveness. Notably, about 72 percent of accountants foresee AI development in the next three years (O'Bannon, 2023). AI supports accountants in various tasks such as *"invoice processing, fraud detection, budgeting and forecasting, predictive financial analysis, audit support, tax compliance and preparation, bookkeeping and data entry",* etc. (Watson, 2024).

However, it is anticipated that AI cannot replace accountants in some certain important work requiring accountants' expertise and experience. According to Li and Zheng (2018), impacts of AI on accountants' jobs are categorised into two branches: financial accounting and management accounting. For financial accounting, AI involves but cannot replace accountants in liability records and accounting estimation. Specifically, the liabilities are recorded with two conditions which are (i) it is likely that the debt obligations relevant to the economic interests are flown out; and (ii) the *"future outflow of economic benefits amount can be measured reliably"* (Li and Zheng, 2018). In which, the measurement in the later task can only be reliably performed by accountants' judgment on the possibility of the occurring events and their observations in the economic environment changes to evaluate whether the future outflow is accurate or not, if not, it will affect the enterprise's financial reports. In this case, robots cannot perform since they cannot recognise the changes in the enterprise's internal and external environment, they can only process and centralise

the digital data more quickly. Besides, accounting estimates that refer to the perception of a organisation on situations with uncertainty in results based on recently used information also require accountants to utilise their perception of the environmental changes to reliably determine the accounting estimates for the enterprise's financial decisions. In this situation, AI also cannot conduct on behalf of human beings. Therefore, at least in the current era, it could be seen that AI can only perform certain calculus sets to support accountants in the data analysis process, however, in some specifically fundamental aspects like liabilities and accounting estimates, they demand accountants optimise their judgment, knowledge, expertise, and relevant professional experience, together with related accounting standards and relevant regulations to give true and fair financial data to the stakeholders. For management accounting, AI participates but cannot replace accountants in *"business forecasting, economic decision-making, and performance appraisal and evaluation*" (Li and Zheng, 2018). Especially, in economic decision-making, AI *"cannot understand the potential correlation between production and operation activities through common sense, induction and reasoning like human beings"* (Li and Zheng, 2018). Besides, in performance appraisal and evaluation, AI can give information, set up models, and facilitate future environments to help management accountants complete their jobs, but cannot entirely replace management accountants to make managerial choices.

According to researchers Lee and Tajudeen (2020) who implemented a qualitative study in Malaysia to explore the impact of AI on accounting in Malaysia organisations, AI adoption is not restricted to certain organisation sizes, even small to medium organisations have been able to adopt AI-based accounting software efficiently to utilise its benefits. This contradicts some existing academic research findings that large organisations are usually more ready to adopt digital technologies (Jackson and Allen, 2024), one of the reasons could be the fact that such organisations have more available funding to invest in technologies. However, the research findings of Lee and Tajudeen (2020) about the impacts of AI on accounting in Malaysian organisations have pretty similar results to existing academic research regarding the fact that AI eliminates accountants' repetitive and administrative tasks such as facilitating invoice checking and referencing, invoice storage in soft copies, matching purchase orders and invoices to avoid invoice manipulation by staff, etc. In overall, most existing academic research agrees that AI can support accountants in removing the basic accounting tasks and cannot replace them on important tasks requiring accountants' expertise and experience in the relevant fields.

In recent years, there has been some academic research about AI in Vietnam but they are mostly about factors affecting AI adoption in Vietnam (Anh *et al.*, 2024) (Nguyen *et al.*, 2022). One of the notable points in these research findings is that technology readiness has a positive correlation with AI adoption in Vietnam. Given that there is limited academic research on the impacts of AI on accountants' jobs in Vietnam, it is unclear whether AI has not yet been widely adopted in Vietnamese's accounting sector, or simply there are limited researchers who have interests in the relevant field, the study is conducted to fulfill this research gap.

2.4.3 Blockchain

Following Bellucci *et al.* (2022), blockchain is highly beneficial for accountants since it prevents earnings manipulation and makes assurance on information and data. Besides, it also eliminates repetitive tasks and the reconciliation process, thus it can conduct real-time accounting and test the whole database instead of sampling and thus can reduce manual errors. Although blockchain still leads to some confidentiality and transparency concerns, it is undeniable that blockchain has a

triple-entry bookkeeping function that is highly advantageous to accountants when it provides third entries (or verification) recorded on a chain to minimise internal fraud (Hartoyo *et al.*, 2021). However, the researchers also noticed that in some cases regarding audit and tax issues, blockchain applications are limited when it comes to the need for a financial intermediary to give external verification. The researchers also concluded that blockchain cannot replace accountants in all the fundamental accounting tasks, but plays a supporting role for accountants in the financial reporting process, which aligns with the existing academic research.

However, it could be seen that the existing researchers explore the impact of blockchain on accountants' jobs depending on the stage of blockchain adoption. For instance, according to Bonsón and Bednárová (2019), besides the cybersecurity matters that blockchain might bring to accounting functions like the existing research, the researchers also figured out that organisations might also face with architecture designs and flexibility issues at the early stage of blockchain adoption. This could be clarified by the fact that this study was implemented in 2019 when the technology is still at the beginning stage of the accounting world. However, the research findings are still valid for organisations like small to medium enterprises that newly integrate blockchain into their accounting departments.

A recent study being conducted in Indonesia – a Southeast Asia country like Vietnam gives notable points regarding the impact of blockchain on accountants' jobs. In particular, according to Hartoyo *et al.* (2021), blockchain facilitates Accounting Information Systems to search for relevant data which could be utilised as a reference for the financial reports organising process. Besides, the researchers have the same view with the existing academic research about the impact of triple-entry accounting function of blockchain as it can avoid data manipulation and the fact that blockchain cannot replace accountants when it comes to analysing and organising the financial reports.

In Vietnam, blockchain usage in the accounting field is still at the beginning stage. Hence, most existing academic research in Vietnam is mostly about the factors impacting blockchain adoption in Vietnamese accounting. Particularly, Sharma *et al.* (2023) mentioned that costs and technology readiness are the two most substantial factors impacting the decision to apply blockchain in Vietnamese accounting. Given that blockchain adoption in accounting in Vietnam is in the early stage (Sharma *et al.*, 2023) and there is limited academic research about the impact of blockchain on accountants' jobs specifically in Vietnam, this study is conducted to fill the research gap.

2.4.4 Cloud computing

According to Atadoga *et al.* (2024), cloud computing automates the routine data entry and processing tasks which not only minimises errors but also dramatically enhances the pace of information processing so that accountants can get the most updated data for better financial decision-making. Therefore, accountants could concentrate on creating more values for the organisations on tasks such as data analysis and finance strategy. Besides, researchers also observed that regardless of geographical place, the accounting team could work well together at the same time which not only enhances effectiveness by avoiding the delays of document exchange but also facilitates a cooperative working atmosphere. Accountants can share and track changes, thus, cloud computing enhances transparency and hence, fosters a closer relationship between accountants and their clients when all the information users can access data in real-time. Moreover, cloud computing is highly evaluated since it improves data security by concentrating on *"encryption,*

secure data transmission, data backup, and disaster recovery" (Atadoga *et al.*, 2024). Nonetheless, the usage of cloud computing also causes data security concerns (Hashizume *et al.*, 2013) since the data transmission is performed through the Internet server (Rao and Selvamani, 2015). Besides, researchers also noted that cloud computing adoption also causes some compliance challenges to accountants. Especially, accountants must comply with numerous laws and regulations on data privacy. Besides, different jurisdictions might have different rules, for instance, *"the General Data Protection Regulation (GDPR) in Europe or the Health Insurance Portability and Accountability Act (HIPAA) in the United States"* (Atadoga *et al.*, 2024). In summary, throughout the usage of cloud computing, not only accountants must comply with data privacy laws and secure client data but also ensure the reliability of cloud services are of greatest importance.

Since the existing academic research studying the impact of cloud computing on accountants' jobs specifically in Vietnam is limited, but mostly about the factors impacting the intention to use cloud accounting in certain organisations in Vietnam (Afifa *et al.*, 2022), (Binh *et al.*, 2023), (Thien and Hieu, 2023), the study is conducted to fill the research gap.

Overall, the author combines all the factors of digital technologies that might have an impact on accountants' jobs according to the existing academic research which will be used as the basis of this study's survey and considered as independent variables of this study as follows:

Digital technologies factors on accountants' jobs according to the existing academic research		
Digital technologies	**No**	**Impact on accountants' jobs**
BDA (4)	1	BDA supports to get real time data
	2	It is hard to control BDA since it is complicated
	3	BDA raises concerns about authenticity
	4	BDA could not replace accountants
AI (4)	1	AI eliminates some previous repetitive tasks
	2	AI can do some of the basic accounting tasks on behalf of human
	3	AI cannot do some high-level tasks requiring accountants' objective judgment and accumulated experience
	4	AI cannot replace accountants
Blockchain (3)	1	Blockchain makes assurance on data verification
	2	Blockchain avoids data manipulation
	3	Blockchain raises confidentiality concerns
Cloud computing (4)	1	Cloud computing makes assurance on the most updated data
	2	Cloud computing creates a collaborative working environment regardless of geographical locations
	3	Cloud computing improves data security (i.e. data backup/ disaster recovery)
	4	Cloud computing causes some challenges such as data privacy compliance regulations
	15	

Figure 3. Summary of digital technologies factors on accountants' jobs according to the existing academic research

2.5. Conceptual Framework

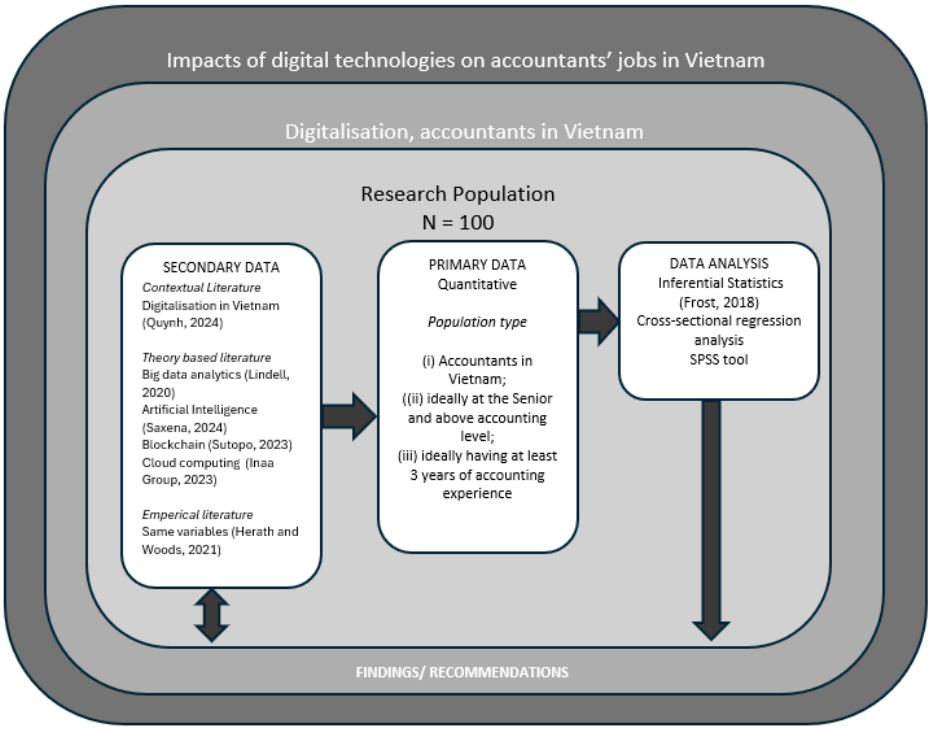

Figure 4. Conceptual Framework

The conceptual framework indicates the relationship between the variables that this study tends to explore (i.e. impact of digital technologies on accountants' jobs within the context of Vietnam nation), the characteristics of the primary data in the quantitative format, and the data analytical method to analyse the data for the findings and recommendations to answer the research question. The details will be further discussed in the later chapters.

2.6. Conclusion

Although Vietnam is considered one of the developing countries indicating digital readiness early, especially in the Accounting and Finance sector (Agency for Enterprise Development, Ministry of Planning and Investment, Vietnam, 2024), the country still faces several challenges including limited financial and non-financial resources (i.e. time, proficiency, technical issues) (Quynh, 2024) (Binh and Phuong, 2020). Besides, with the fast pace of digital advancements, clients and other stakeholders expect a new generation of technology-driven accountants (Imene and Imhanzenobe, 2020), therefore, in order not to be outdated, accountants nowadays not only need to boost their expertise to maximise the benefits that digital technologies bring to accounting, but also be well aware of the corresponding disadvantages to minimise the negative effects of digitalisation. Following recent studies, top digital technologies that have a significant impact on accountants include Big Data Analytics ("BDA"), Artificial Intelligence ("AI"), Blockchain and Cloud computing. Given that there is limited existing academic research about the impact of digital technologies on accountants' jobs within the context of Vietnam country, this study is conducted to fill the research gap.

3. METHODOLOGY AND RESEARCH DESIGN

3.1 Overview

The purpose of this chapter is to figure out numerous forms of research methodologies from different viewpoints. This chapter starts by examining the most typical research paradigms and the relevant research approaches which directs a deeper exploration of quantitative and qualitative research methods. The author will review the research paradigms and concentrate on the methodology (i.e. quantitative research method) that is considered to more appropriately suit the study. Then a research strategy and the related collection of primary data plan are formed (including considerations of primary data sources as well as access and ethical issues) to guide the author in conducting the research strategy. In consideration of the various research methodological philosophy and their approaches, research questions, and contexts, the chapter closes with the approach to data analysis and the conclusion on the author's selected research methodology.

3.2 Research Philosophy and Approach

Research is using a methodology to collect and analyse information in order to explain, understand, or analyse a problem or find a solution to the problem (Vasuki, 2021), (Creswell, 2011), and (Burns and Grove, 1993). Researchers define the research methodology as logical steps from identifying a research problem to concluding a conclusion that provides the connection between theoretical and evidence-based positions, including the usage of agreed standards to keep it rigorous (Tan, 2022).

Of note, some researchers may indistinguishably use the terms "Research designs" and "Methods" (Tan, 2022), nonetheless, in this study, we will differentiate between the research designs and methods of data collection.

From the theories and formulas above, it could be seen that a research methodology is formed by the research philosophy which reflects the author's assumptions on how the information should be analysed and used and these assumptions will be a base for the research strategy (BRM, n.d.).

Following Tan (2022), there are two main science philosophies which are casual science and interpretive science. The casual science values the objectivity and objective reality is separated from our conceptions. In contrast, for interpretive science, a same event could be resulted from numerous realities or multiple views since each individual may have different subjective experiences and understandings. In casual science, there are *"positivist, post-positivist, neo-posi-tivist, realist, critical rationalist, critical realist, Marxist, and conventional-ist approaches"* (Tan, 2022). On the other hand, for interpretive science, there are *"interpretivism, hermeneutics, constructivism, discourse analysis, grounded theory, critical theory, symbolic interactionism, ethnomethodology, gender, and phe-nomenological approaches"* (Tan, 2022).

In this study, the author will focus on utilising the Positivistic research paradigm. A research positivist looks for objectivity and believes that the world is definable, meaning that they can explore all the required facts if they ask the suitable questions. Normally, the hypothesis will be proved by quantitative method (Kasi, 2009).

Depending on the research philosophies, the research approaches will differ for each type of research paradigms. The two most common research approaches are deductive (for the quantitative method) and inductive (for the qualitative method). Particularly, the deductive approach means the researchers *"works from the "top" down, from a theory to hypotheses to data to add to or contradict the theory"* (Creswell and Clark, 2007).

From the author's point of view, the author believes that objectivity exists which could be reliably measured and it is not dependent of individual's knowledge and experience. Therefore, since the author uses a quantitative research method, the research philosophy will be a positivistic research paradigm and hence, a deductive research approach will be utilised to collect and analyse the data of this study.

3.3 Research strategies

Since the author choose the quantitative research method as a result of positivistic research paradigm and deductive research approach, an appropriate research strategy should be developed to meet the relevant research philosophy and approach. According to Creswell (2011), some research problems under quantitative method demand the researchers explain the relationships among variables, in particular, how one or more than one variables have an impact another variable. The researchers also define variables as an attribute or features of individuals that researchers conduct research on.

As applied to this study, with the research question: "How do digital technologies impact accountants' jobs in Vietnam?", since the author will apply cross-sectional regression analysis, it could be seen that the independent variables will be the factors of the most common digital technologies being applied to Vietnamese accounting sector as being identified in the literature review (i.e. Big Data Analytics ("BDA"), Artificial Intelligence ("AI"), Blockchain, and Cloud computing). Each type of digital technology will have different factors that might impact accountants' jobs following the existing academic research. In total, there will be 15 factors which means 15 independent variables. Kindly refer to Figure 3 under Section 2.3 and Figure 7 under Section 4.2.1) to get the details. The dependent variable will be linked to accountants' jobs in Vietnam.

To find the solution to the research question, the author will need to seek the viewpoints of the accountants in Vietnam since they are the individuals who directly experience and observe the impact of digital technologies in Vietnamese accounting. As the author could not access a large group of accountants within a nation due to being out of the author's time and effort capability, the author will concentrate on collecting responses from a limited group of accountants, analyse their responses to identify trends, and consider the trends to represent the viewpoints of a large group of accountants in Vietnam.

In this case, a survey is an effective tool. According to Creswell (2011), survey is one of the procedures under the quantitative research method in which the researchers conduct a survey to a group of individuals (also called a sample) to explore the attitudes, perspectives, or features of a large individual group (also known as the population). For this study, the sample will be a group of accountants in Vietnam with a number of approximately 100 individuals.

3.4 Collection primary data

3.4.1 Sources

The source of primary data will be respondents on survey design under Google Forms format which will be collected through two main channels: (i) the author's personal and professional network; and (ii) social media channels. The population will be approximately 100 individuals.

The ideal target of respondents will be as follows:
(i) accountants working in Vietnam.
(ii) ideally having a minimum of 03 years of relevant experience; and
(iii) ideally at the Senior and above level in accounting.

Besides, the quantitative data will be measured in the following question types:
(i) dichotomous (i.e. gender – male or female);
(ii) nominal (i.e. working level in accounting, number of years of relevant experience); and
(iii) ordinal (i.e. Likert scale – from strongly disagree to strongly agree regarding accountants' evaluation of the efficiency and impact of each type of digital technologies in their daily jobs).

The reason behind the author's chosen target of respondents and question types is that the respondents' experience is crucial for the reliability and validity of the final results. The higher the progression of the profession and the more experience the respondents (i.e. accountants) have, the higher the probability that these accountants will have more observations and exposures to properly assess the effects of digital technologies being applied to their accounting jobs.

The next step to consider is the time horizon. Following Wilson (2021), there are two main types which are cross-sectional design and longitudinal design. If the researchers conduct a single cross-sectional design, they only use one sample from the population and thus the data from the sample will be obtained once only. The same applied to a multiple cross-sectional design, more samples from the population are used and hence the data from the sample will be obtained over time. For longitudinal design, the researchers will analyse a sample or samples from the population over a lengthened period, normally some years. In this study, the author decides to use a single cross-sectional regression analysis due to the restricted time and resources.

3.4.2 Access and Ethical Issues

Throughout the age of Big Data, Sula (2016) has summarised the key access and ethical issues in research as follows:
(i) Selection of participants: With the accessibility of online data, it has never been easier to post the content and reach the research target publicly. Nonetheless, not all participants are figurative and suitable for the given study. Researchers have observed that each social media platform may have unalike user characteristics. For instance, people observed a significant rise in the number of Twitter users that are male, white, aged 65 and above, and living in households with a yearly household income of USD50,000 upwards between 2013 and 2014. To limit the matters, the author will make a note of the suitable research participants at the introduction of the survey and make the survey publicly available on

social media channels that are more easily reachable to the suitable research participants such as Facebook and LinkedIn.

(ii) Invasiveness: Some invasive research forms may cause harm to the research participants or violate ethical morals such as appropriating value or confidentiality constraints. As Big Data may be obtained more easily, it usually includes more information that is strictly necessary to conduct a given study. To limit the matters, the author will only collect and analyse the necessary data for the research design, in particular, decline to obtain unnecessary data in the first place or delete such data immediately if it has been already obtained.

(iii) Informed consent: Big Data collection often continues without seeking consent from the research participants which violates the research ethics. The author will provide the research participants with as much necessary information as needed for them to appropriately decide whether they would like to engage in the survey or not. If the author could not anticipate all the potential harms, the author shall note to the participants.

(iv) Privacy/Anonymity: Information that a person removes online may still be in a dataset obtained in the previous years. With the integration of new datasets and analytics, an anonymous person today may have a risk of being personally recognisable in the future. Hence, the author shall be careful to decide what variables should be collected and to minimise the questions that the author considers them sensitive to the research participants.

3.5 Approach to data analysis

The study will use inferential statistics such as cross-sectional regression analysis to analyse the quantitative data. According to Asadoorian and Kantarelis (2005), inferential statistics (also called "inductive statistics") uses probabilistic methods to understand the population (unknown whole) by analysing sample information from a given population (known part). In which, a sample from the population is selected randomly which is a sub-set of possibilities chosen from the population.

Following Frost (2018), there are three main types of inferential statistics that are:

(i) Hypothesis testing: Testing a hypothesis about a population parameter utilising sample data.
(ii) Confidence interval: Estimating the exact value of a population parameter based on sample data.
(iii) Regression analysis: Examining the correlation or relationship between independent variables and dependent variables.

In this study, the author will use a sample of 100 accountants working in Vietnam ideally with relevant experience from 3 years and above, and from the Senior and above level. The author will carry out the descriptive statistics, correlation matrix for multicollinearity testing, cross-sectional regression analysis, and Breusch-Pagan test for heteroskedasticity in a linear regression model to explore the correlation between independent variables (i.e. factors of digital technologies that are Big data analytics ("BDA"), Artificial Intelligence ("AI"), Blockchain, and Cloud computing) and dependent variable (i.e. accountants' jobs in Vietnam) to evaluate whether the correlation in the sample is valid in the population. To support the inferential statistics, the author will use the SPSS analytical tool. The specification (regression) model will be as follows (Kindly refer to Figure 7 under Section 4.2.1 to identify the abbreviations for the independent variables):

$$DEP_{i,t} = a + \beta_1 BDA1_{i,t} + \beta_2 BDA2_{i,t} + \beta_3 BDA3_{i,t} + \beta_4 BDA4_{i,t} + \beta_5 AI1_{i,t} + \beta_6 AI2_{i,t} + \beta_7 AI3_{i,t} + \beta_8 AI4_{i,t} + \beta_9 BC1_{i,t} + \beta_{10} BC2_{i,t} + \beta_{11} BC3_{i,t} + \beta_{12} CC1_{i,t} + \beta_{13} CC2_{i,t} + \beta_{14} CC3_{i,t} + \beta_{15} CC4_{i,t} + \varepsilon_{i,t}$$

3.6 Conclusion

In summary, the author will implement a quantitative study based on a positivist paradigm using a survey data-gathering method integrating inferential statistics such as regression analysis supported by the SPSS analytical tool to arrive at evidence-based findings.

4. PRESENTATION AND DISCUSSION OF THE FINDINGS

4.1 Overview

A questionnaire of 100 surveyed respondents was used to explore the impact of digital technologies on accountants' jobs in Vietnam. In support of the findings, since the author implements the quantitative study integrating inferential statistics such as cross-sectional regression analysis, the author follows the following statistical procedures with the SPSS analytical tool: (i) descriptive statistics; (ii) correlation matrix (to examine the multicollinearity between the independent variables and whether they are truly independent); (iii) Cross-sectional regression analysis (to examine the relationship between the variables); and (iv) Breusch-Pagan test (to examine heteroskedasticity in a linear regression model).

4.2 Findings

4.2.1 Survey responses background (Descriptive statistics)

Most respondents are accountants working in Vietnam that are females having relevant experience in accounting from 3 years and above, and mostly are at high-level accounting positions. It could be seen that the background of the surveyed participants is consistent with the criteria of the target respondents that the author has set prior to the questionnaire being handed out, especially with the result that most participants have many years of experience with a minimum of 3 years and the accounting professional hierarchy being at least at the Deputy level. The existing academic research also has a common view that working experience has a positive correlation with working performance (Kotur and Anbazhagan, 2014). Hence, the more experience these accounting professionals have accumulated, the more exposure and observations they have throughout their professional period. Therefore, their responses will enhance the accuracy and validity of the study findings.

Background	Details	Proportion
Gender	Male	19%
	Female	81%
Years of relevant experience	Less than 3 years	6%
	From 3 years and above	94%
Accounting position	General accountant	14%
	Deputy accountant	18%
	Financial controller	68%

Figure 5. Surveyed respondents' background

For other responses, the author summarises the descriptive statistics as follows (Kindly refer to Figure 7 to clarify the abbreviations):

Descriptive statistics									
	N	Min.	Max.	Mean	Std. Deviation	Skewness		Kurtosis	
Name (*)	Stat.	Stat.	Stat.	Stat.	Stat.	Stat.	Std. Error	Stat.	Std. Error
BDA1	100	1	3	1.97	.223	-2.385	.241	17.268	.478
BDA2	100	2	5	3.98	.376	-1.394	.241	10.613	.478
BDA3	100	2	5	3.98	.348	-1.787	.241	14.106	.478
BDA4	100	1	4	2.00	.603	1.410	.241	4.698	.478
AI1	100	0	2	1.86	.450	-3.317	.241	10.315	.478
AI2	100	0	4	1.91	.514	-1.504	.241	8.956	.478
AI3	100	0	4	1.97	.658	.031	.241	4.840	.478
AI4	100	1	4	2.03	.559	1.076	.241	4.024	.478
BC1	100	0	3	1.95	.411	-3.032	.241	15.148	.478
BC2	100	0	3	1.93	.477	-2.494	.241	9.983	.478
BC3	100	0	5	3.83	.753	-4.201	.241	19.056	.478
CC1	100	1	3	1.98	.245	-1.145	.241	14.243	.478
CC2	99	1	3	1.96	.317	-.917	.243	7.079	.481
CC3	100	1	3	1.94	.312	-1.439	.241	6.836	.478
CC4	100	2	5	3.94	.422	-2.029	.241	9.774	.478

DEP	100	1	4	1.86	.586	.643	.241	2.626	.478
Valid N (listwise)	99								

Figure 6. Descriptive statistics result

(*) In which, the details for the dependent variable and independent variables are explained as follows:

Dependent variable: *In overall, my accounting jobs are improved by integrating with digital technologies* (Abbreviation: DEP)

Independent variables:

Independent variables		**Abbreviations**
BDA	*(i) In my experience, BDA supports me to get real time data*	BDA1
	(ii) I find it hard to control BDA since it is complicated	BDA2
	(iii) Sometimes, BDA raises concerns about authenticity	BDA3
	(iv) I believe that in the future, BDA can replace accountants	BDA4
AI	*(v) In my experience, AI eliminates some of my previous repetitive tasks*	AI1
	(vi) In my experience, AI can do some of the basic accounting tasks on behalf of me	AI2
	(vii) In my experience, AI can do some of the high-level tasks requiring objective judgement and accumulated experience on behalf of me	AI3
	(viii) I believe that in the future, AI can replace accountants	AI4
Blockchain	*(ix) In my experience, blockchain makes assurance on data verification*	BC1

	(x) In my experience, blockchain can support to avoid data manipulation	BC2
	(xi) Sometimes, blockchain raises concerns about confidentiality	BC3
Cloud computing	*(xii) In my experience, cloud computing makes assurance on the most updated data*	CC1
	(xiii) In my experience, cloud computing creates a collaborative working environment regardless of geographical locations	CC2
	(xiv) In my experience, cloud computing improves data security (i.e. data backup/ disaster recovery)	CC3
	(xv) In my experience, cloud computing causes some challenges such as data privacy compliance regulations	CC4

Figure 7. Independent variables and abbreviations

4.2.2 Impact of digital technologies on accountants' jobs in Vietnam

The study will employ cross-sectional regression analysis. For the ease of processing the specification model, the author combines variables and their abbreviations in the table below:

a. Specification model:

The author solves the research question by estimating the Likert scale of the impact of each type of digital technologies on accountants' jobs in Vietnam from accountants' perspectives through ordinary least squares (OLS regression). After reviewing the empirical literature, the author concludes 15 specific factors under 04 main digital technologies type might that have an impact on accountants' jobs in Vietnam (see Figure 06 for more details). Hence, the cross-sectional regression model is specified as below:

$$DEP_{i,t} = a + \beta_1 BDA1_{i,t} + \beta_2 BDA2_{i,t} + \beta_3 BDA3_{i,t} + \beta_4 BDA4_{i,t} + \beta_5 AI1_{i,t} + \beta_6 AI2_{i,t} + \beta_7 AI3_{i,t} + \beta_8 AI4_{i,t} + \beta_9 BC1_{i,t} + \beta_{10} BC2_{i,t} + \beta_{11} BC3_{i,t} + \beta_{12} CC1_{i,t} + \beta_{13} CC2_{i,t} + \beta_{14} CC3_{i,t} + \beta_{15} CC4_{i,t} + \varepsilon_{i,t}$$

In which, ε_i is a random error term and i indicates the ith factor. The dependent variable links to accountants' jobs overall which is measured by the Likert scale regarding the impact of digital technologies on accountants' jobs from their evaluation. After the specification model, the author will perform the correlation matrix in order to test the multicollinearity among the independent variables.

b. Correlation matrix:

Correlations

	BDA1	BDA2	BDA3	BDA4	AI1	AI2	AI3	AI4	BC1	BC2	BC3	CC1	CC2	CC3	CC4
BDA1	1	-.249*	-.530**	0.075	0.159	0.064	-0.006	0.088	.204*	0.075	-0.031	.359**	.270**	-0.026	-0.019
BDA2	-.249*	1	.384**	-0.178	0.163	0.147	0.079	-0.093	-0.137	-0.121	-0.012	.215*	.334**	0.076	-0.071
BDA3	-.530**	.384**	1	-.386**	-0.083	-0.180	-0.047	-0.153	-.219*	-0.191	0.064	-.242*	-0.100	0.082	.198*
BDA4	0.075	-0.178	-.386**	1	0.186	.261**	.305**	.210*	.204*	.316**	-0.067	.205*	.266**	0.107	-0.040
AI1	0.159	0.163	-0.083	0.186	1	**.731****	.634**	0.097	.562**	.519**	.615**	.340**	.316**	0.155	0.009
AI2	0.064	0.147	-0.180	.261**	**.731****	1	.529**	0.045	.647**	.262**	.560**	.306**	.227*	-0.034	-0.025
AI3	-0.006	0.079	-0.047	.305**	.634**	.529**	1	.414**	.405**	.476**	.295**	.246*	.286**	0.188	-0.116
AI4	0.088	-0.093	-0.153	.210*	0.097	0.045	.414**	1	-0.081	0.160	-.252*	0.152	.351**	0.126	-0.078
BC1	.204*	-0.137	-.219*	.204*	.562**	.647**	.405**	-0.081	1	.548**	**.788****	0.190	-0.016	-0.181	-0.076
BC2	0.075	-0.121	-0.191	.316**	.519**	.262**	.476**	0.160	.548**	1	.586**	-0.185	0.115	0.175	0.079
BC3	-0.031	-0.012	0.064	-0.067	.615**	.560**	.295**	-.252*	**.788****	.586**	1	-0.128	-0.157	-0.044	0.095
CC1	.359**	.215*	-.242*	.205*	.340**	.306**	.246*	0.152	0.190	-0.185	-0.128	1	.512**	-0.148	-.207*
CC2	.270**	.334**	-0.100	.266**	.316**	.227*	.286**	.351**	-0.016	0.115	-0.157	.512**	1	.386**	-0.018

CC3	-0.026	0.076	0.082	0.107	0.155	-0.034	0.188	0.126	-0.181	0.175	-0.044	-0.148	.386**	1	.356**
CC4	-0.019	-0.071	.198*	-0.040	0.009	-0.025	-0.116	-0.078	-0.076	0.079	0.095	-.207*	-0.018	.356**	1

Figure 8. Correlation matrix result

Since independent variables should be independent, otherwise it might cause problems when the researchers apply the model and interpret the results (Frost, 2017). Hence, the author will perform the correlation matrix to test the multicollinearity problem among the independent variables. As a result, two pairs of independent variables are highly correlated with a correlation figure of more than 70 percent, which are:

(i) *In my experience, AI eliminates some of my previous repetitive tasks* (AI1) and *In my experience, AI can do some of the basic accounting tasks on behalf of me* (AI2); and

(ii) *In my experience, blockchain makes assurance on data verification* (BC1) and *Sometimes, blockchain raises concerns about confidentiality* (BC3).

Therefore, to avoid the multicollinearity problem, the independent variables that are highly correlated to each other could not be used simultaneously in the regression analysis. Hence, the author will separate into two different specification models:

First specification model:

$$DEP_{i,t} = a + \beta_1 BDA1_{i,t} + \beta_2 BDA2_{i,t} + \beta_3 BDA3_{i,t} + \beta_4 BDA4_{i,t} + \beta_5 AI1_{i,t} + \beta_7 AI3_{i,t} + \beta_8 AI4_{i,t} + \beta_9 BC1_{i,t} + \beta_{10} BC2_{i,t} + \beta_{12} CC1_{i,t} + \beta_{13} CC2_{i,t} + \beta_{14} CC3_{i,t} + \beta_{15} CC4_{i,t} + \varepsilon_{i,t}$$

Second specification model:

$$DEP_{i,t} = a + \beta_1 BDA1_{i,t} + \beta_2 BDA2_{i,t} + \beta_3 BDA3_{i,t} + \beta_4 BDA4_{i,t} + \beta_6 AI2_{i,t} + \beta_7 AI3_{i,t} + \beta_8 AI4_{i,t} + \beta_{10} BC2_{i,t} + \beta_{11} BC3_{i,t} + \beta_{12} CC1_{i,t} + \beta_{13} CC2_{i,t} + \beta_{14} CC3_{i,t} + \beta_{15} CC4_{i,t} + \varepsilon_{i,t}$$

After separating the specification model, the author will apply the regression analysis (i.e. cross-sectional regression analysis) for each specification model.

c. Cross-sectional regression analysis:

c.1 First specification model:

	Abbreviations	**Coefficients**	**T-statistic**	**P-value**
Intercept		3.386		
In my experience, BDA supports me to get real time data	BDA1	0.314	0.098	0.906
I find it hard to control BDA since it is complicated	BDA2	0.204	1.545	0.208
Sometimes, BDA raises concerns about authenticity	BDA3	**-0.034**	0.115	0.951
I believe that in the future, BDA can replace accountants	BDA4	-0.185**	2.406	0.072
In my experience, AI eliminates some of my previous repetitive tasks	AI1	0.022	1.219	0.300
In my experience, AI can do some of the high-level tasks requiring objective judgement and accumulated experience on behalf of me	AI3	-0.142	0.628	0.644
I believe that in the future, AI can replace accountants	AI4	-0.067	1.386	0.252
In my experience, blockchain makes assurance on data verification	BC1	-0.344	0.907	0.441
In my experience, blockchain can support to avoid data manipulation	BC2	0.414	0.220	0.882

In my experience, cloud computing makes assurance on the most updated data	CC1	-0.112	0.486	0.616
In my experience, cloud computing creates a collaborative working environment regardless of geographical locations	CC2	**-0.008**	0.278	0.758
In my experience, cloud computing improves data security (i.e. data backup/ disaster recovery)	CC3	-0.070	0.966	0.384
In my experience, cloud computing causes some challenges such as data privacy compliance regulations	CC4	-0.464***	3.398	0.021
Adjusted R-square		0.115		
F statistic		1.978**		
Sig.		0.032		

Figure 9. Cross-sectional regression analysis result of the second specification model

***significant at 1% level, **significant at 5% level

Overall, it could be seen that there are only two independent variables that are statistically significant in the first specification model with the coefficient figures of more than 5 percent that are:

(i) *Sometimes, BDA raises concerns about authenticity* (BDA3); and
(ii) *In my experience, cloud computing creates a collaborative working environment regardless of geographical locations* (CC2).

Both the independent variables have negative correlations with the dependent variable.

c.2 Second specification model:

	Abbreviations	Coefficients	T-statistic	P-value
Intercept		3.335		
In my experience, BDA supports me to get real time data	BDA1	0.246	0.098	0.906
I find it hard to control BDA since it is complicated	BDA2	0.259	1.545	0.208
Sometimes, BDA raises concerns about authenticity	BDA3	-0.054	0.115	0.951
I believe that in the future, BDA can replace accountants	BDA4	-0.202*	2.406	0.072
In my experience, AI can do some of the basic accounting tasks on behalf of me.	AI2	-0.079	1.192	0.320
In my experience, AI can do some of the high-level tasks requiring objective judgement and accumulated experience on behalf of me	AI3	-0.131	0.628	0.644
I believe that in the future, AI can replace accountants	AI4	-0.062	1.386	0.252
In my experience, blockchain can support	BC2	0.349	0.220	0.882

to avoid data manipulation				
Sometimes, blockchain raises concerns about confidentiality	BC3	-0.089	0.097	0.983
In my experience, cloud computing makes assurance on the most updated data	CC1	-0.231	0.486	0.616
In my experience, cloud computing creates a collaborative working environment regardless of geographical locations	CC2	**0.038**	0.278	0.758
In my experience, cloud computing improves data security (i.e. data backup/ disaster recovery)	CC3	**-0.031**	0.966	0.384
In my experience, cloud computing causes some challenges such as data privacy compliance regulations	CC4	-0.437**	3.398	0.021
Adjusted R-square		0.101		
F statistic		1.850**		
Sig.		0.048		

Figure 10. Cross-sectional regression analysis result of the second specification model

***significant at 1% level, **significant at 5% level

Overall, it could be seen that there are only two independent variables that are statistically significant in the first specification model with coefficient figures of more than 5 percent that are:

(i) *In my experience, cloud computing creates a collaborative working environment regardless of geographical locations* (CC2); and

(ii) *In my experience, cloud computing improves data security (i.e. data backup/disaster recovery)* (CC3).

The former independent variable has a positive correlation and the later one has a negative correlation with the dependent variable.

d. Breusch Pagan test:

d.1 First specification model:

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	0.894	13	0.069	0.203	.999[b]
	Residual	28.795	85	0.339		
	Total	29.689	98			

Figure 11. Breusch Pagan result of the first specification model

Since the p-value (sig.) is more than 05 percent, there is no heteroskedasticity problem in the first specification model.

d.2 Second specification model:

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	0.810	13	0.062	0.182	.999[b]
	Residual	29.154	85	0.343		
	Total	29.964	98			

Figure 12. Breusch Pagan result of the second specification model

Since the p-value (sig.) is more than 05 percent, there is no heteroskedasticity problem in the second specification model.

4.3 Discussion

The results of this study show that Big Data Analytics ("BDA") and Cloud computing are the two digital technologies that have the most significant impact on accountants' jobs in Vietnam. Specifically, BDA raises concerns about authenticity that might harm accountants' jobs based in Vietnam. This finding is consistent with the qualitative study of Farooq Aziz (2023) being conducted in the USA about the challenges of BDA regarding the veracity characteristics. In particular, the study from the USA explores the authenticity and trustworthiness concerns that the adoption of BDA might bring to accountants can result in unqualified data analytics output and thus might have an adverse impact on accountants' economic decisions. Hence, the study recommends accountants integrate with various BDA tools to identify the most effective solution for the accounting department. However, the study also mentions that this way could take numerous resources such as time, financial and skills development. Nonetheless, since Vietnam is still a developing nation compared to a strongly developed country like the USA, Vietnamese accounting is definitely struggling with restricted resource issues such as a lack of skilful workforce, infrastructure, financial resources, digital mindset (Quynh, 2024) and technical issues (Binh and Phuong, 2020). Therefore, to cope with the authenticity matters of BDA usage in accounting, accountants in Vietnam might face with several challenges both in technical and financial obstacles.

Another notable finding is that the adoption of cloud computing in accounting in Vietnam might cause more challenges regarding data security rather than benefits. This contradicts the study from (Atadoga *et al.*, 2024) when the researchers indicate that cloud computing enhances data security, especially in data transmission, backup and disaster recovery. However, the finding of this study is consistent with the study from Rao and Selvamani (2015) when the researchers explore that cloud computing could lead to data security issues since the data is exchanged through an unsecured server such as the Internet. Hashizume *et al.* (2013) also have the same view as this study's finding about the data security matters that the usage of cloud computing might bring to accountants. In particular, cloud computing could result in several threats such as account or service hijacking (i.e. if the attackers can connect to a user's credentials, they can gain access and manipulate data, as well as change any transactions), data scavenging (i.e. the attackers can recover the sensitive data as data might not be entirely deleted), data leakage (i.e. the data could get into the attackers while being transmitted, stored or processed), etc.

4.4. Conclusion

In conclusion, by utilising the SPSS analytical tool to explore the descriptive and inferential statistics between the variables, the study indicates that Big Data Analytics ("BDA") and Cloud computing are the most common digital technologies that might have impact on accountants' jobs in Vietnam. In particular, BDA adoption in Vietnamese accounting could result in authenticity matters that might affect the quality of data analytics and accountants' financial strategy. Besides, cloud computing usage also might raise data security concerns among Vietnamese accountants. To eliminate the negative impact of such digital technologies on accountants' jobs in Vietnam, the accounting sector is recommended to invest in various resources such as time, finance and skillset.

5. CONCLUDING THOUGHTS ON THE CONTRIBUTION OF THIS RESEARCH, ITS LIMITATIONS AND SUGGESTIONS FOR FURTHER RESEARCH

5.1 Implications of findings for the research questions

The key result of this study is the most common digital technologies that might have a significant impact on accountants' jobs in Vietnam, specifically, whether the effects are positive or negative. This impact is also meaningful since it alerts accountants in Vietnam about the factors directly or indirectly affecting their professional rating performance. Hence, the results have implications for accountants, accounting students and graduates, accounting faculty and academic researchers, etc. For accountants, the results support them to be updated with the popular digital technologies being applied in accounting, then get an overview of the areas of these digital technologies that accountants shall thoroughly concentrate on and improve the corresponding skills. Therefore, the findings support accountants not being outdated with the fast pace of digital readiness upgrade level in Vietnam. For accounting students and graduates, the findings help them to be more well-prepared regarding the digital technologies' effects on accounting, improving their accounting job opportunities, and raising their digital accounting awareness both in their academic and potential professional experience after their academic study. For accounting faculty and academic researchers, the findings of this study could be used for the references in support of their research. Overall, the main result of this study will have significant implications for both accounting academics and professionals (i.e. accountants, accounting students and graduates, accounting faculty and academic researchers) regarding the most significant digital elements during the accounting work from people who are directly experiencing on the relevant field from most accountants' evaluations and judgment in Vietnam.

5.2 Contributions and limitations of the research

This study not only contributes to the accountants' success but also the ongoing research on the effects of digital technologies on accountants' jobs in Vietnam. However, the study still has some noteworthy limitations. Firstly, the research scope is limited to one nation in Southeast Asia which is Vietnam. Given that Vietnam is a developing country with a high digital readiness level (Agency for Enterprise Development, Ministry of Planning and Investment, Vietnam, 2024), the country itself is still struggling to face many challenges regarding the available resources (Quynh, 2024) to close the gap with the developed nations. Therefore, the prediction for other nations should be cautiously generalised. Secondly, since this study employs quantitative research, the responses are limited to certain responses from the questionnaire only, thus might lack of additional open responses from accountants' evaluations. Thirdly, another limitation is the time horizon of the research. Since the study employs single cross-sectional regression analysis, the data from the sample is obtained once only, not over lengthened period. Given that digitalisation advancement might dramatically change at a quick pace, the findings of this study might be applicable within a year from the date of this research being submitted. Lastly, accountants' responses to the survey might be affected by response bias and may not necessarily be consonant with the truth. As the author ensured surveyed participants their confidential responses and did not give out any presents for participation, the author assumes there is minimal risk of systematically biased responses.

5.3 Recommendations for Practice

As suggestions for the accounting practice within the context of Vietnam, accountants can add more value to their organisations by noticing the top digital technologies that are currently affecting their jobs and could take appropriate actions by enhancing technical skills and collaborating with the enterprises to make investments in financial resources or training programmes to maximise the advantages and minimise the challenges that these digital technologies might bring to accountants in the current era.

5.4 Recommendations for future research

As suggestions for future research about the impact of digital technologies on accountants' jobs, future researchers could use a mixed method including both quantitative and qualitative methods to obtain more added value observations and judgments from accountants. As the author has mentioned the limitations, the findings of the study are limited to responses about accountants' evaluations of the impact of digital technologies on their jobs only. If having available resources (i.e. time), future researchers could combine with qualitative research to obtain more added value and open responses from accountants such as solutions to eliminate the negative effects of digital technologies, or the specific skills that accountants shall focus to improve in the current era. Besides, since digital development might update and change quickly, future researchers can implement a longitudinal design which means the data from the sample is obtained over lengthened period, normally some years to identify whether there might be periodically different high-impact digital technologies or separate effects for each type of digital technologies.

5.5 Final conclusion and reflections

In conclusion, although Vietnam is considered one of the countries in Southeast Asia to indicate digital readiness at the earliest stages with a high digitalisation growth rate of nearly 40% per annum (Binh and Phuong, 2020), Vietnam still finds it struggling to completely and effectively adopt digital technologies due to restricted resources such as a lack of skilful employees, finance capital, infrastructure, digital mindset (Quynh, 2024) and technical issues (Binh and Phuong, 2020). Given that the accounting sector is one of the industries in Vietnam with the highest willingness to adopt digitalisation, and there is limited existing academic research on the impact of digital technologies on accountants' jobs, the study is conducted to fill the research gap. As a result, the study finds that Big Data Analytics ("BDA") and Cloud computing are the digital technologies that have the most impact on the jobs of accountants working in Vietnam. Notably, BDA usage in accounting could raise authenticity matters that might affect the data analytics quality and accountants' economic strategy. Besides, cloud computing adoption might also result in data security concerns among Vietnamese accountants. The result of this study contributes to the accountants' success in general since it alerts them on the high-impact digital technologies and their effects on accountants' jobs. However, the study still has some limitations such as restricted context, available resources, limited responses, etc. Future academic researchers are recommended to take consideration when generalising the study data findings, selecting the research methods and time horizon for added value creation.

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APPENDICES

Questionnaire for data collection and analysis