Study on Cultural Transformation that Drives towards an Effective Digital Transformation of Small Medium Enterprises (SME) in Selected States of Malaysia

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DECLARATION

This work has not previously been accepted in substance for any degree and is not being concurrently submitted in candidature for any degree.

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STATEMENT 1

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ABSTRACT

This research explores how organisational culture affects the adoption of digital transformation within the Small and Medium Enterprises (SME) in selected states of Malaysia. Although SMEs understand the need and benefits of digital transformation, their adoption rate remains low. This problem has negatively impacted most SMEs who are lagging in shifting towards digitalisation. Therefore, this research provides clarity and conceptualises a Digital Culture Transformation framework to resolve their business pain points and guide them in achieving sustainable value creation. This research adopts an exploratory sequential mixed-method research design. This research will focus on SMEs, covering both the micro-enterprises and small and medium-sized enterprises, in Selangor and Kuala Lumpur as the two states representing the highest SME population in Malaysia. This would potentially contribute more value to a significant population of business establishments in Malaysia. Based on the analysis. 98% of the SMEs agreed that the digital culture elements, i.e. Digital Vision, Innovation Culture, Agile Way of Working, Customer-centricity, Collaboration, and Digital Leadership, are vital to them. From this research, it is proven that there is a positive correlation between the digital culture elements and three core areas of value creation, which are: 1) financial performance, 2) productivity improvement, and 3) customer satisfaction. SMEs that intend to implement digital culture transformation will need to; 1) have the right attitude towards the behaviour, 2) positively influence the organisation by exerting social pressure that strengthens the digital culture, and 3) have the perceived behavioural control mainly appropriate processes, people or tools to implement the intended transformation. The main contribution of this research is threefold. Firstly, to uncover the core elements of a digital culture, which is currently an understudied subject. Secondly, to develop a culture transformation framework for the SME to achieve an effective digital transformation. Thirdly, as a contribution to the body of knowledge related to the digital transformation field of study. The direct output of this research will be the formulation of a culture transformation framework that can be adopted by SMEs. The conceptual model could serve as a critical frame of reference for Malaysia's digital economy development plan, which subsequently supports the country's aspiration to boost its digital economy.

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ABBREVIATIONS

Abbreviation	Description
AI	Artificial Intelligence
AR	Augmented Reality
B2B	business-to-business
B2C	business-to-customers
BCG	Boston Consulting Group
CEO	Chief Executive Officer
CRM	Customer Relationship Management
DOSM	Department of Statistics Malaysia
ePOS	Electronic Point of Sales
ERP	Enterprise Resource Planning
GDP	Gross Domestic Product
ICT	Information and Communication Technology
IDC	International Data Corporation
IoT	Internet of Things
IR	Industrial Revolution
MAGIC	Malaysian Global Innovation and Creativity Center
MCO	Movement Control Order
MDEC	Malaysia Digital Economy Corporation
MED	Ministry of Entrepreneur Development
ML	Machine Learning
PDPA	Personal Data Protection Act
QDA	Qualitative Data Analysis
SLSAM	Soft Loan Scheme for Automation & Modernization
SME	Small and Medium Enterprise
SSM	Companies Commission of Malaysia
TAM	Technology Acceptance Model
TPB	Theory of Planned Behaviour
TRA	Theory of Reasoned Action
TSR	Total Shareholder Return
UC	University Consortia
VR	Virtual Reality
WHO	World Health Organization

CHAPTER 1: INTRODUCTION

1.1 BACKGROUND OF THE STUDY

1.1.1 THE CRISIS TRIGGERED THE CASE FOR CHANGE TOWARDS DIGITAL TRANSFORMATION.

In 2020, an unprecedented crisis affected the world. The novel Coronavirus Disease (Covid-19) infected 331 million people worldwide (Worldometer, 2020). With a higher mortality rate than other known viruses like Influenza and the rapid spreading of the virus across the globe, the World Health Organization (WHO) has declared the COVID-19 outbreak a pandemic. As a result, the government worldwide imposed lockdowns and social distancing as preventive measures to prevent the disease from spreading.

Since then, the pandemic outbreak has affected the world in many ways. Politically, the world's government is forced to take quick actions and proactive measures in responding to the outbreaks effectively. The world's biggest financial markets, like China and the United States, are experiencing poor market performance and market volatility, thus creating a domino effect on other nations. Global trade is running suboptimal when the trade exchange between countries is halted or reduced due to certain measures and restrictions enforced, like the Movement Control Order (MCO) or banning border crossing between high-risk states or countries. Non-essential businesses like retail outlets, travel agencies, construction, real estate and automotive are forced to close their operations during this period.

Due to this, companies are having a hard time downsizing operation and retrenching their employees to sustain the impact of COVID-19. Some even come to the extent of shutting their business down since the global economy is paralysing. According to the World Bank (2020), the global GDP plunged to -3.4% in 2020 (2019: 2.6%), the deepest recession since World War II. The ongoing Covid-19 pandemic is reshaping not only the global economies but also consumer behaviour. As a result, demand for automation, contactless technology and innovation adoption increased. Furthermore, the crisis led to the evolution of the nature of conducting business and adapting to the new normal lifestyle.

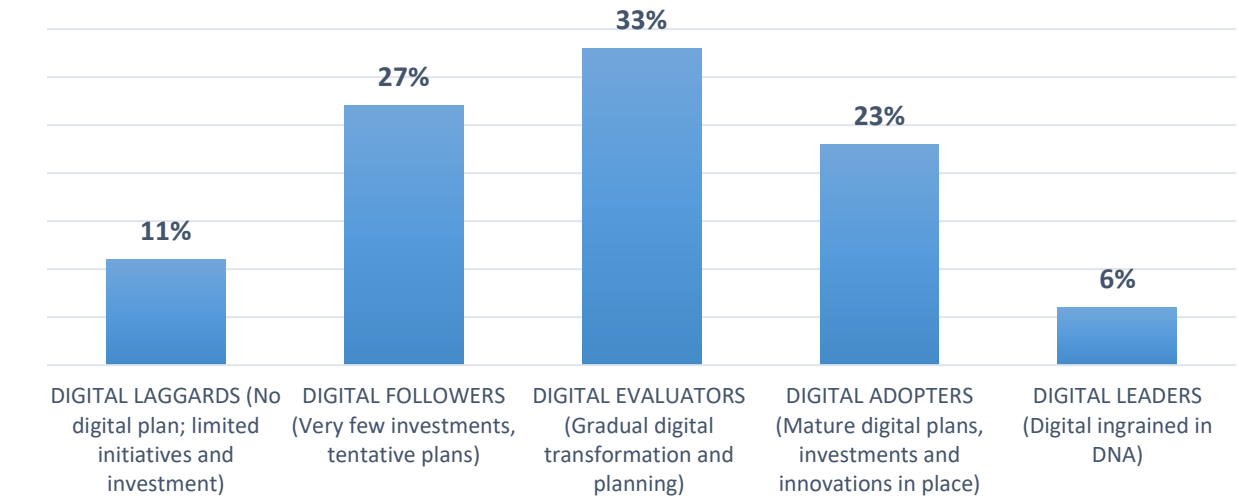
This unforeseen phenomenon forced people to adjust to new behaviour, such as working from home, virtual learning, and online purchases (Accenture, 2020; Sajal Kohli et al., 2020; Selligent, 2020). This situation has led to the rapid emergence of the digital economy, even faster than initial

expectation from the introduction of the Fourth Industrial Revolution (IR 4.0) by Klaus Schwab in the 2016 World Economic Forum. Schwab, K. (2016) stated that exponential digital technologies advancement in the current era has led to a revolution that changes our life. The revolution includes increased economic activities fused with digital technologies and capabilities.

In order to survive the crisis and abiding restrictions enforced, businesses are forced to adopt IR 4.0 through technological advancement of robotic, Machine Learning (ML), Artificial Intelligence (AI), the Internet of Things (IoT), e-commerce, and other technologies quicker than most businesses have planned. Moreover, implementing digital technologies inside their business operations will allow them to stay relevant in the current exponential emergence of the digital market. The story about Blockbuster and Netflix is one of the well-known examples. Going digital is not an option anymore, but it is a necessity for all businesses. Based on Emarsys (2020) data, global online retail revenue increased four times from its level before Covid-19 in March 2020, indicating a significant rise in the digital marketplace. The trend is likely to continue post-outbreak as consumers adapt to the new normal, signalling the growth of the digital economy.

Nevertheless, based on Dell Technologies research focusing on mid to large-sized companies worldwide, Malaysia's digital maturity remains low, with a score of only 42 out of 100. Furthermore, based on the study, 55% of the respondents indicated that lack of budget and resources is the key reason most companies in Malaysia are lagging in the pace of digitalisation. As shown in *Figure 1.1* below, the report indicated that only about 23% of Malaysian companies are digital adopters, i.e. the companies have mature digital plans, investments, and innovations in place.

Figure 1. 1: Malaysia Digital Transformation Index



Source: Dell Technologies (2018)

On the other hand, only about 6% of the companies are digital leaders, i.e. the digital-driven business model (Dell Technologies, 2018). These are mainly large enterprises as they have the capital to invest in digital technologies and talent. However, the main concern is that one-third of the companies combined are among the digital laggard (11%) and digital followers (27%). These companies have no digital plan and limited investments in digital technologies (Dell Technologies, 2018). Among the reasons for this situation is that many companies tend to wait as long as possible before getting into such investments. They fear taking the risk to execute and focusing only on short-term goals to drive profitability.

Digital transformation efforts within organisations towards a digital economy are not just applicable to large enterprises. It is necessary for every type of business, irrespective of industry and corporation size. However, large corporations have the advantage in capital to embark on digital transformation compared to small businesses, which subsequently eat the market share of the small businesses. The need for digital transformation is becoming much more critical to SMEs as they face an existential crisis. They would become irrelevant if they did not change how they do business in this digital era.

1.1.2 BACKGROUND OF SME IN MALAYSIA BY SECTOR

SME have various definitions around the world. However, based on the *Guideline for SME Definition* published by Malaysia's SME Corp, any entity registered with the Companies Commission of Malaysia (SSM) or other equivalent bodies will be classified as SME if it fulfils three main conditions regarding qualifying criteria, type of establishment and shareholding structure. In simple terms, according to SME Corp, (2014; 2020), SME are categorized into micro-enterprises and Small and Medium Enterprises (SME) based on their size and level of investment. The categorisation is:

1. SME are establishments with a sales turnover of less than RM50 million or full-time employees not exceeding 200 workers.
2. Micro-enterprises are establishments with a sales turnover of less than RM300,000 or full-time employees not exceeding five workers (SME Corporation Malaysia, 2022a).

In terms of population, most SMEs were microenterprises, representing 76.5% of the total Malaysian SMEs. The balance of 21.2% and 2.3% of the total SME establishments are small-sized and medium-sized SMEs, respectively. There are about 907,065 SMEs in Malaysia, representing

98.5% of total business establishments across various sectors (DOSM, 2017; SME Corporation Malaysia, 2022b). The segregation of the SMEs by major sectors is shown in Table 1.1 below:

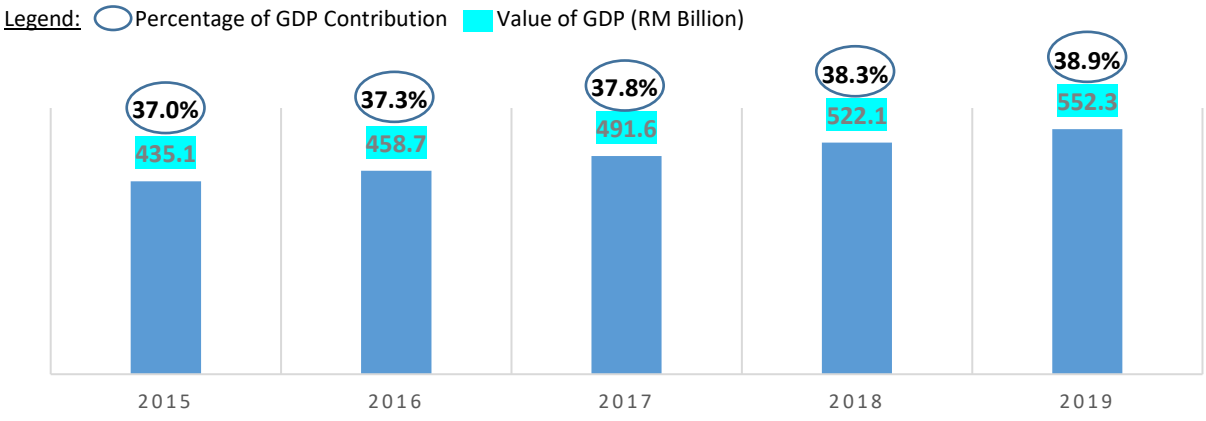
Table 1. 1: Number of SME By Size and Percentage Share by Sector (Year 2016 survey)

No	Sectors in SME	No. of establishment	% Share
1	**Services**	**809,102**	**89.2%**
2	Manufacturing	48,074	5.3%
3	Construction	39,004	4.3%
4	Agriculture	9,978	1.1%
5	Mining & quarrying	907	0.1%
	TOTAL	**907,065**	**100%**

Source: Department of Statistics Malaysia, (2016); SME Corporation Malaysia. (2018a).

SME is an important economic growth driver in many countries (World Bank, 2020.; Botezatu et al., 2020). For the past five years, Malaysian SMEs have consistently remained one of the major economic contributors, with a contribution to the country's GDP at an average of 37.8% per year. For 2019, SMEs' GDP stood at RM552.3 billion, contributing to 38.9% of the national GDP, increasing from 38.3% in the previous year (DOSM, 2020). The increasing trend is clear evidence that the SME sector is one of Malaysia's key economic growth drivers.

Figure 1. 2: SME's GDP and Contribution to Malaysia's GDP (2015 – 2019)



Source: DOSM. (2020b)

The services sector is an important sector within the Malaysian SME, representing 89.2% of total establishment, with the highest contribution to GDP of 24.5% in 2019 (2018: 23.9%) compared to other sectors within SME (DOSM., 2020b), as shown in Table 1.2 below.

Table 1. 2: Malaysia's SME Contribution to GDP by Sector (2015 – 2019)

SME by Sector	2015	2016	2017	2018	2019
Services	**22.4%**	**22.8%**	**23.2%**	**23.9%**	**24.5%**
Manufacturing	7.5%	7.6%	7.6%	7.7%	7.7%
Construction	2.2%	2.3%	2.3%	2.3%	2.2%
Agriculture	4.2%	4.0%	4.0%	3.9%	3.8%
Mining & quarrying	0.2%	0.2%	0.2%	0.2%	0.2%
Plus: import duties	0.4%	0.5%	0.5%	0.4%	0.5%
SME contribution to GDP (%)	**37.0%**	**37.3%**	**37.8%**	**38.3%**	**38.9%**

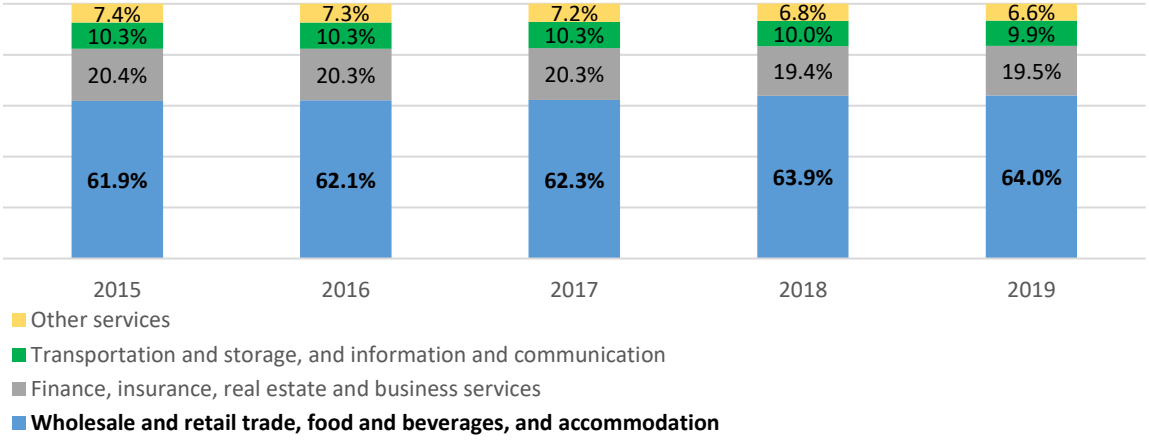
Source: DOSM. (2020b) - *Note: Figures may not necessarily add up due to rounding*

Within the services sector, there are three broad categories of sub-sectors, namely:

1) Wholesale and retail trade, food and beverages, and accommodation.
2) Finance, insurance, real estate and business services.
3) Transportation and storage, and information and communication.

According to DOSM (2020), the wholesale and retail trade, food and beverages, and accommodation sub-sector consistently remain the highest value-added sector within the SME services sector in Malaysia for the past five years. The wholesale and retail trade sub-sector contributes to about 64% of the total SME services sector's GDP, as shown in *Figure 1.3* below.

Figure 1. 3: SME Services Performance by Sub-sectors (2015 – 2019)



Source: DOSM (2020)

1.1.3 SME IS IN CRITICAL NEED OF DIGITAL TRANSFORMATION.

Apparently, within the SME services sub-sector, retail trade has been identified as the key sector that is highly vulnerable to digital disruption (Deloitte, 2012). This is primarily because the retail sector has direct contact with consumers, who are now evolving amid the digital world. Taking a snapshot of the retail sector in Malaysia, about 100,000 SMEs have ceased operations since the beginning of the MCO in March 2020 (Azman, 2021). The affected SMEs are mainly in the retail and food and beverages sectors. The economic recession in the year 2020 that is hampering the global economy could be the main reason businesses are shutting down. However, Amos Tong & Gong, (2020) cited that their inability to adapt to digitalisation during Covid-19 is also a critical contributing factor.

Particularly in the retail sector, consumer touchpoints augment the traditional retail stores with the digital marketplace, mainly due to the rise of e-commerce and various disruptive technologies. Digital technologies allow them to evaluate the products before even purchasing them. As a result, consumers are more demanding than before (Shah et al., 2006), and they have access to information through various digital technologies. The Covid-19 crisis has created a new normal where consumers shift their buying behaviour towards online shopping. As a result, the e-commerce trend in Malaysia is emerging.

Even before Covid-19, PwC (2018) cited that 21% of Malaysians indicated that they prefer to purchase goods online rather than through traditional brick-and-mortar stores, and the trend is expected to increase in the coming years. In Malaysia, e-commerce is anticipated to achieve annual growth of 20% by 2020 from 14.3% in 2017 (Shah, 2018). As a result, competition within the retail market is anticipated to escalate. Brick-and-mortar stores will have to compete with digital stores (Deloitte, 2017). Physical retail store is becoming irrelevant. SMEs, particularly in the retail sector, have no choice but to transform their business digitally.

In 2018, SME Corporation Malaysia, in collaboration with Huawei Technologies, International Data Corporation (IDC) Malaysia, and University Consortia (UC), conducted a study of 2,033 SMEs in Malaysia, covering all economic sectors and industries. The purpose is to examine the status of digitalisation adoption, drivers, and barriers to Malaysian SMEs' digital transformation. The study is a vital input for the government's plans to accelerate SMEs' digitalisation in Malaysia (SME Corp, 2018b; Huawei Technologies, 2018). The study explored the adoption of digital technologies beyond basic computing (i.e. digitisation). Based on the research, most SMEs in

Malaysia have computing capabilities (such as smartphones, personal computers or laptops) and internet connectivity. In addition, about 71% of them are using social media marketing as part of their digital marketing. However, only 44% of SMEs are involved in e-commerce.

In addition, less than 20% of the SMEs use digital solutions (such as Enterprise Resource Planning (ERP), Customer Relationship Management (CRM) and Point of Sales (ePOS) to improve productivity. The data indicates that SMEs are predominantly trapped in the computerisation chasm. They use computers but mainly for basic administrative purposes. They use digital marketing but are only limited to posting advertisements on social media (SME Corp, 2018b; Huawei Technologies, 2018; SME Corp, 2018b) stated that there are five critical barriers for the SMEs to adopt digitalisation:

1. Financing is the biggest hurdle, and SMEs believe that ICT is expensive (49% of respondents). Furthermore, 60% of the respondents are unaware of financing options to support digitisation initiatives.

2. Lack of the right employee skillset (48% responses). This primarily refers to the need for business and digital skillset to develop their digital business strategy. For example, SMEs need to have skill sets to help retailers integrate online and offline sales channels.

3. Lack of knowledge in digital technologies adoption to reach more customers and automate their operations to increase efficiency (48% responses). Notably, SMEs use computers, smartphones or tablets, and the Internet. However, they think ICT is just an administrative or productivity tool.

4. Unavailability of a coherent digital business strategy (46% responses). The digital business strategy is an imperative element that outlines how to improve business performance using digital technologies. However, the lack of a digital mindset within the SMEs leadership is the key reason why they did not bother to have a digital business strategy.

5. An inadequate networking solution to support the digitisation initiatives (40% responses)

To address these key barriers, various initiatives have been initiated to spur the digital transformation of businesses in Malaysia, specifically focusing on the SMEs. The Ministry of Entrepreneur Development (MED), Malaysia Digital Economy Corporation (MDEC) and the Malaysian Global Innovation and Creativity Center (MAGIC) are among the government agencies

that are driving this digital transformation agenda. Among the crucial initiatives conducted are listed below:

Table 1. 3: Government initiatives for Digital Transformation (2016 – 2019)

No	Government initiatives	Focus area
1	National Entrepreneurship Framework by Ministry of Entrepreneur Development (MED, 2018)	Regulatory framework
2	Digital Transformation Acceleration Program (MDEC, 2019b)	Digital adoption program
3	Soft Loan Scheme for Automation & Modernization (SLSAM) To assist manufacturing companies in modernising and automating the manufacturing process (MIDF, 2018)	Financing
4	MaGIC Academy that offers various entrepreneur skills set programmes free of charge to entrepreneurs (Singh, 2018)	Training programmes
5	Industry Digitalisation Transformation Fund. RM3 billion worth of loans by Bank Pembangunan Malaysia with an interest subsidy of 2% for all Malaysian companies interested in digitalising their businesses (BPMB, 2016)	Financing
6	SME Business Digitalisation Grant - The Government will provide a 50% matching grant of up to RM5,000 per company for the subscription of digitalisation services. (MDEC, 2019c)	Financing

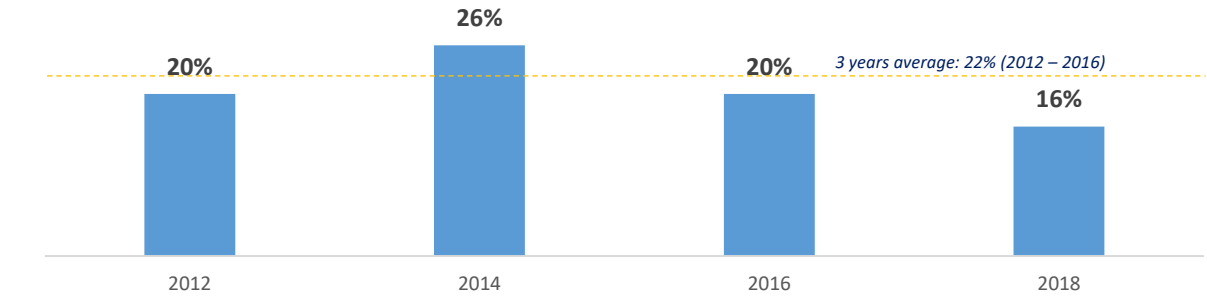
Despite various initiatives by the government and its agencies to foster the digital economy and accelerate digital transformation, only 51% of SMEs participated in the SME development programs (SME Corp, 2018b), indicating the lack of interest and deficiency in their culture in embarking on digital transformation. As a result, SMEs tend to focus on digital technologies to deliver short-term gains, leading to the risk of transformation failure. To foster long-term growth, SMEs should focus on shifting the organisational culture to drive an effective digital transformation. While the Covid-19 crisis may have brought economic disruptions to the world, on the bright side, it also hastened the pace for businesses to begin their Digital Transformation journey. SMEs understand the need to embark on digital transformation, but the question is how?

1.1.4 CULTURE TRANSFORMATION IS THE KEY TO A SUSTAINABLE DIGITAL TRANSFORMATION FOR THE SME.

Conventional organisational transformation is complex, but digital transformation is more complicated. In a new McKinsey Global Survey on digital transformations, more than 80% of the respondents who have undertaken digital transformation for the past few years are still unable to

achieve a ‘successful transformation’(Boutetière, et al., 2018). The study defines a ‘successful transformation’ as one that is entirely successful at both improving performance and being able to sustain improvements over time. According to Boutetière, et al., (2018), in the year 2018, data shows that the success rate of digital transformations for many companies is only 16%, which is even lower than the previous three years' average of 22%

Figure 1. 4: Success Rate for Digital Transformation



Source: Boutetière, et al., 2018

As companies start to embrace digital technologies and innovations, the companies' competencies and culture need to change. Therefore, organisational culture transformation is the key to thriving in digital transformation. This is supported in the Asian Digital Transformation 2018 study, which revealed that the success factors of digital transformation in Asia do not solely depend on access to technology and specialised talent but are also infused by organisational mindsets and digital culture (The Economist, 2018).

We can view the state of digital culture from the lens of the digital mindset, specifically the SME mindset towards the usage of ICT technology. Based on previous studies, only 50% of Malaysian SMEs possess an 'ICT Leader mindset', which means that they believe ICT would benefit their business and provide a competitive edge (Huawei Technologies, 2018; SME Corp, 2018b). About a quarter of the SMEs are 'ICT Followers'. They perceive ICT only as a productivity tool, not a business enabler. Another 20% of the final group is known as 'ICT Laggard', which reflects those who are afraid to begin the digital transformation, and wait until other businesses start, tested and proven a particular technology before adopting digitalisation (Huawei Technologies, 2018; SME Corp, 2018b)

Digital transformation and 'innovation' are interrelated concepts. Innovation refers to changes and improvement by creating and implementing new processes or products, which result in greater efficacy and quality (Mulgan, G. et al.,2003; H. Tohidi. et al.,2012). If we view it from the

perspective of the innovation culture of SMEs in Malaysia, the data presented a consistent trend. The state of innovation of Malaysian SMEs remains poor. In the latest Global Innovation Barometer conducted by GE, SMEs in Malaysia are falling behind in driving innovation, dropping to just 6% in the year 2018, compared to 14% in 2014 (GE, 2019). This finding indicated why they are still lagging in digital transformation.

Cultivating digital culture is the key to accelerating digital transformation but remains problematic for SMEs. Ostensibly, culture is difficult to change because it is embedded in one's DNA. When an organisation's culture needs a shift, the mindset shift can be challenging and create tensions within the organisation (Lange et al., 2018). Incongruence in individual feelings towards the intended changes will create friction and lead to a lack of enthusiasm to perform, diminishing the digital culture's overall health. Furthermore, an effective and practical digital culture transformation model for SMEs remains understudied (Tuukkanen et al., 2021).

1.2 STATEMENT OF THE PROBLEM

SME Corporation Malaysia reported that based on the year 2019 data, only one-third of the SMEs in Malaysia adopt digital transformation in their business (Star Media Group Berhad, 2019). Many SMEs in Malaysia are far from being digital-ready even during the Covid-19 post-pandemic era (World Bank, 2021). This problem has negatively impacted most companies who lag in shifting their business model towards digitalisation. Their survival is at stake as they face difficulties sustaining their business. Based on a survey by EY (2020), nearly half of the respondents cited that they are facing a fall in demand, a decline in revenue and a cash flow issue due to Covid-19. In addition, some of them may have ceased operations due to challenging economic conditions and their inability to embark on digital transformation.

To remain relevant and competitive, it is now vital for all businesses to embark on digital transformation. Although various initiatives to spur digital transformation for SMEs have been introduced by the government and other agencies, they show little enthusiasm to participate or take advantage of the incentives (SME Corporation Malaysia, 2018). As a result, the digital transformation adoption rate remains low, particularly among SMEs in Malaysia. According to SME Corporation Malaysia, as of 2019, only 32% of SMEs embrace digital transformation in their business (Star Media Group Berhad, 2019). Even after two years of confronting the Covid-19 pandemic, the state of digital adoption among Malaysian companies, specifically SMEs, has not been really encouraging (SME Corporation Malaysia, 2021)

A possible cause of this problem is the SMEs' lack of ability to change their workforce mindsets and organisational culture to drive digital transformation (Microsoft & IDC Asia Pacific, 2018). Although many acknowledge the need for digital transformation, they find it challenging to balance performance expectations and innovate for the future simultaneously. The success rate for the companies that have undertaken digitalisation also remains low due to flaws in the culture, which has led to the risk of a short-lived digital transformation journey (Boutetière, et al., 2018). It is known that cultural values are not easy to identify, manage, and control; hence, the superficiality in implementing cultural transformation is understandable (Gibson & Barsade, 2003).

However, to achieve an effective digital transformation and sustainable business performance, businesses should focus on digital culture transformation (McKinsey & Company, 2018a). The process of digital culture transformation remains unclear to most organisations (Lange et al., 2018; Tuukkanen et al., 2021), and most previous research remains silent on the specific characterisation of digital culture (Hartl, 2019). Driven by this gap, this research will study the characterisation of digital culture as a critical ingredient of a successful digital transformation and provide insights for SMEs to embark on culture transformation. Furthermore, this research will discuss the detailed discovery of the determinants of a digitally empowered culture that propel towards sustainable business growth for the SME.

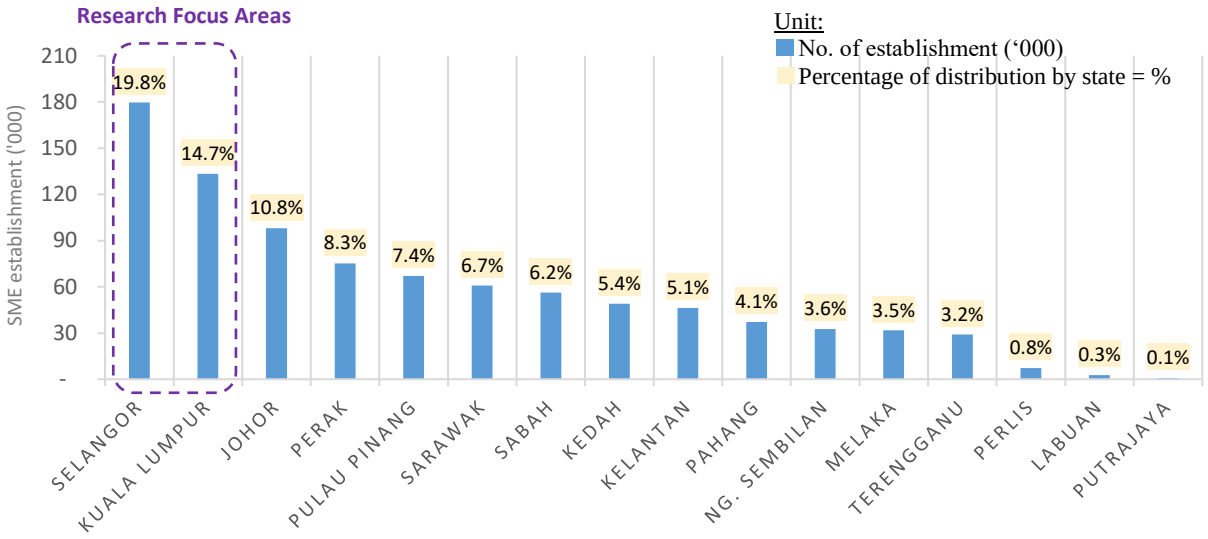
1.3 SCOPE OF THE RESEARCH

This research focuses on understanding the critical elements of digital culture within the SME in selected states of Malaysia to propel a successful digital transformation. The researcher could identify the key drivers through this exploration, prescribe potential solutions, and formulate a culture transformation framework to address the issues of digital culture deficiencies. This study does not cover the process of digital technology implementation, mainly because it is widely covered in other research works. The main focus of this research is on cultural transformation, particularly in SMEs.

The location coverage of this study is in selected states of Malaysia. The focus will be on the SME sector because they represent the majority of business establishments in the country (i.e. 98.5% of business establishments in Malaysia are SMEs). Most of the SMEs are established and operating in vital economic areas, with the distribution of the population by states focusing on Selangor (19.8%), Kuala Lumpur (14.7%) and Johor (10.8%) (SME Corp, 2018a). Detailed SME by the state is shown in *Figure 1.5* below. This research will focus on SMEs in Selangor and Kuala Lumpur as the two

states that represent the highest population of SMEs in Malaysia. This would potentially contribute more value to a significant population of business establishments in Malaysia. The SMEs population that will be involved in this research covers both the micro-enterprises and small and medium-sized enterprises. Predominantly this is because regardless of their size and level of investment, all SMEs need to adopt digital technologies, especially for them to grow in the post-Covid-19 pandemic era (SME Corporation Malaysia, 2021)

Figure 1. 5: Distribution of SME in Malaysia by State



Source: SME Corp (2018a) - Economic Census 2016 by Department of Statistics Malaysia (DOSM)

This research will focus on the retail sub-sector within the SME. The retail sector is highly susceptible to digital disruption; hence there is a critical need for the SMEs in the retail sector to embark on digital transformation. However, it is not easy for retailers to transition from conventional brick-and-mortar stores to becoming digitally-driven businesses due to various legacy and culture issues. This research will attempt to resolve that business pain point by developing a digital culture transformation framework to guide them in achieving sustainable value creation through their digital transformation journey.

1.4 RESEARCH AIM AND OBJECTIVES

Malaysian SMEs are still lagging in their digital transformation adoption (World Bank, 2021) despite the urgency for them to transform amidst the Covid-19 pandemic due to the lacking of their organisational culture to drive digital transformation (Microsoft & IDC Asia Pacific, 2018; The Economist, 2018). Researchers theorise that this is due to the lack of understanding of the process of cultivating the digital culture in their organisation (Lange et al., 2018; World Economic Forum,

2021). Furthermore, there is limited research on the implication of digital culture on value creation to the business, which could inhibit digital transformation adoption (Pradana et al., 2022). Therefore, this research aims to investigate elements of organisational culture that drive digital transformation for Malaysian SMEs in the selected states, particularly in the retail sector, and subsequently develop a digital culture transformation framework to ensure effective implementation of digital transformation.

The aim is achieved by pursuing the following objectives:

1. To determine the key elements of digital culture that drive digital transformation for the SME.

   The first objective is to explore the core elements of the digital culture in implementing digital transformation, which will act as the building blocks for a digital culture transformation framework.

2. To analyse the relationship between digital culture elements and value creation through digital transformation for the SME.

   The second objective is to validate the relationship of digital culture elements to value creation through digital transformation.

3. To understand how SMEs implement digital culture transformation to achieve an effective digital transformation.

   The third objective is to understand how SMEs implement digital culture transformation to achieve an effective digital transformation. Subsequently, formulate a digital culture transformation framework for the SME that could be operationalised in actual business.

1.5 RESEARCH QUESTIONS

Based on the research aim and objectives as discussed, three Research Questions (RQ) have been derived for this research, as shown below:

RQ1: What are the key elements of digital culture that drive digital transformation for the SME?

RQ2: What is the relationship between digital culture elements and value creation through digital transformation for the SME?

RQ3: How does SME implement culture transformation to achieve an effective digital transformation?

1.6 SIGNIFICANCE OF THE RESEARCH

The direct output of this research will be the formulation of a culture transformation framework that can be adopted by SMEs. The framework will act as a practical guide for an effective digital transformation and potentially become the critical solution for gaining a more significant competitive advantage and long-term business growth for SMEs. Various unproven digital transformation frameworks have been introduced in previous research works. However, most frameworks focus more on digital technology implementation than culture transformation. The stark differentiator in this research is that culture change prevails over mere technology adoption. Therefore, this research will uncover the critical elements of a thriving digital culture and explore the most effective culture transformation framework for driving a successful digital transformation journey.

The immediate result of implementing the culture transformation framework is increasing digital transformation adoption. This research clarifies the tangible impacts of digitalisation and provides insight into the relationship between an effective digital transformation and value creation, such as financial gain, operational efficiency and customer experience. By recognising the power of culture in driving the digital transformation, we could increase the success rate of the digital transformation effort hence creating a more sustainable value creation opportunity. This insight is vital as it gives SMEs a better perspective on the benefits of going digital. Furthermore, providing empirical evidence on the value creation from digital transformation could trigger businesses to break the hesitation, increasing the likelihood of embarking on digital transformation.

As Malaysia continues progressing as a vital economy globally, the digital economy is poised to be the new driver of economic development. As a result, digital transformation is gaining prominence for businesses in Malaysia. The culture transformation framework developed from this research could be an essential input for Malaysia's Digital Transformation Acceleration Programme, led by MDEC. The model could also serve as a critical frame of reference for Malaysia's digital economy development plan, which subsequently supports the country's aspiration to boost its digital economy.

1.7 ORGANISATION OF THE THESIS

This thesis contains five chapters. Elaboration on the content of each chapter is as per below:

CHAPTER 1 - INTRODUCTION

This chapter provides an overview of the research covering the background, problem statement, scope of the study, aim and objectives, research questions, and significance of the investigation. Various works of literature are synthesised to support the research gap and to derive the research problem statement. The gap discovered in the works of literature is the low adoption of digital transformation by SMEs due to organisational culture deficiencies. Therefore, this research aims to investigate the critical elements of organisational culture that drive towards an effective digital transformation for SMEs. Further discussed in this chapter is the rationale for selecting Malaysian SMEs of selected states, Selangor and Kuala Lumpur, for conducting the empirical work for the research.

CHAPTER 2 – LITERATURE REVIEW

In this chapter, the concept of digital culture transformation is elaborated. Through an extensive literature review, the author of this thesis identifies and elaborates on the core elements of digital culture in driving an effective digital transformation. The identified elements will act as building blocks in formulating a culture transformation framework for SMEs in Malaysia. This chapter also authenticated the relationship between digital culture elements and value creation. The main intention is to provide a theoretical background on the significance of digital culture in implementing a compelling digital transformation journey. Subsequently, various theories, models and frameworks in the organisational development field of research are reviewed in order to determine the most relevant and compatible framework for digital culture transformation that will be applied in this thesis. The essence of this chapter is basically to form the foundation for this research by analysing existing theories and various works of literature. The outcome of the analysis will subsequently become a critical input for formulating the conceptual framework and research methodology in the following chapter.

CHAPTER 3 – RESEARCH METHODOLOGY

This chapter presents the proposed conceptual framework and research methodology in line with the existing literature. This chapter starts with justifying the reasons for selecting the relevant theories that will be adopted as the conceptual framework. In this research, the interrelated theories

adopted are the McKinsey 7-S framework (Peters & Waterman, 1982) and the Theory of Planned Behaviour (Ajzen, 1991). These theories were evaluated to develop the conceptual framework. Subsequently, this chapter presents the research methodology outlining the research philosophy, purpose, scientific approaches, and design. Finally, this chapter justifies the reasons for selecting the relevant research philosophical paradigm, clarifying the purpose and suggesting suitable approaches.

CHAPTER 4 – DATA ANALYSIS

This chapter presents the findings associated with the purpose of the study. Sequential data collection and separate analysis were conducted according to the research questions. There are two main parts to this chapter. The first part of this chapter will discuss the qualitative data analysis conducted for this research. Following that, the findings and data analysis from the quantitative research will be discussed. At the end of this chapter, the integration of results from the analysis and the alignment with the research objectives will be presented in the data analysis discussion section.

CHAPTER 5 - CONCLUSION

This chapter discusses findings and integrates them to address the research questions. The chapter start with the summarisation of the key findings per the respective research questions. Then, answers to the research questions and results of the hypotheses are comprehensively reviewed and authenticated within the context of the literature review. Subsequently, a Digital Culture Transformation framework will be presented as a proposal for the SMEs to embark on digital transformation. Following that, the contributions to the knowledge of this research will be presented along with its practical implication. Next, the limitations of this research will be discussed, followed by recommendations for future research.

CHAPTER 2: LITERATURE REVIEW

This chapter reviews the literature on culture transformation in driving an effective digital transformation for SMEs. The literature review aims to explore key elements of digital culture, value creation from digital transformation fused with digital culture, and provide insights on implementing digital cultural transformation in a digital transformation. The gaps in the works of literature are identified and articulated at the end of this chapter.

2.1 DEFINITION OF KEY TERMS

2.1.1 Digital

Digital can be simply understood as being technology-driven (Paiola, 2017). However, some other past research often constitutes the meaning of ‘digital’ with ‘digitisation’. Digitisation refers to the conversion of analogue to binary data (digital). It is a conversion process from analogue data (that can only be read by a human) to binary data that machines can read (Parviainen et al., 2017; Saima, et al., 2015).

2.1.2 Digitalisation

Digitalisation is often regarded as a fundamental change to the whole organisation by aligning business operations, processes, strategy, organisational structures, ICT infrastructures and technological advancements simultaneously (Parviainen et al., 2017; Imgrund et al., 2018; Mohammad & Naveen, 2019). The term 'digitalisation' also incorporates similar terms, such as digital transformation (Sainger, 2018; Hess et al. 2016; Gierliech et al., 2019).

2.1.3 Digital transformation

Digital Transformation, also commonly known as digitalisation (Hess et al. 2016), is concerned with the adaptation of technology (Barann et al., 2019; Hess et al. 2016; Schwertner, 2017; Tarute et al., 2018) to renew business models, systems, software (Schwertner, 2017), products and organisational structures (Hess et al., 2016) to improve the organisational performance (Tarute et al., 2018) as it results in greater efficiency, enhanced competitive advantage and increased profitability (Schwertner, 2017).

Digital transformation involves radical changes in the business model of an organisation, strategy, and incorporation of digitalisation of assets, focusing on improving the experience of customers, employees, suppliers, partners, and stakeholders (Capgemini, 2011; Parviainen et al., 2017; Savic,

D., 2019). It is reflected by integrating technologies into the entire business areas, such as marketing, strategy, human resources, ICT, or product development which fundamentally change how the organisation initially works (Hess et al. 2016; Schwertner, 2017; Berghaus, 2018).

2.1.4 Culture

Culture is regarded as a model of shared basic assumptions created and developed by a group of people. It solves its problems of external adaptation and internal integration (Schein, E., 2004). Culture can be defined as a learned system of shared understandings (Batteau and Villegas, 2014) of beliefs, norms, values, symbols or behaviours (Belias and Koustelios, 2014; Hacker, 2015,; Walsham, 2002; Lebron, 2013) in a particular society, providing a sense of belongingness and identity to the members (Lebron 2013) and distinguishing a certain society to another (Belias and Koustelios, 2014).

2.1.5 Culture Transformation

Culture Transformation or also often recognised by the term culture change, can be defined as the changes (Varnum & Grossman, 2017), reform or improvement (Moldovan & Macarie, 2014) in norms, behaviours and ideas of a particular society (Varnum & Grossman, 2017; Moldovan & Macarie, 2014) by reshaping the traditions, myths, values and fundamental ideas shared by the society or organisation (Moldovan & Macarie, 2014). Culture transformation occurs throughout an organisation involving changing the workforce's hearts, minds, and skills to support the desired organisational goals. It is a collective shifting of individual behaviour within the organisation driven by leadership. Cultural transformation can also be recognised through its purpose of producing a new identity for both the members and the organisation to reach specific objectives, such as digital transformation (Moldovan & Macarie, 2014).

2.1.6 Digital Culture

Digital Culture is a critical ingredient of a successful digital transformation journey. There are various definitions for the term 'Digital Culture', but it is commonly referred to as an environment in which people interact with technology (Microsoft, 2017; Swati Kamath, 2019). Cultivation of digital culture is crucial as it creates a positive virtuous cycle that accelerates digital transformation (Hyvönen, 2018). A thriving digital culture requires attitude, values and behaviours to change and reflect the digital transformation agenda. Sometimes, it is often misconstrued that 'digital culture' and 'digital mindset' are the same thing. Both concepts share similar characteristics, but the fundamental difference is the scope and scale of each one. The digital mindset is a construct at an individual level, while digital culture is a construct of the collective people (Swati Kamath, 2019).

Digital culture emphasis on flexibility of the workforce to respond to new challenges, effectively use technology and deliver sustainable value to stakeholders (World Economic Forum, 2021)

2.1.7 Digital Culture Transformation

Digital culture transformation refers to the process of changing the workforce's hearts, minds, and skills, which involves a complete reassessment and overhaul of an organisation's character (White, 2020) towards achieving a successful digital transformation journey (Hartl & Hess, 2017; Microsoft & IDC Asia Pacific, 2018; Lange et al., 2018; Hemerling et al., 2018; Hartl, 2019). Digital Culture transformation is vital to developing a digital culture in an organization (McKinsey & Company, 2018; Lange et al., 2018). It focuses on being agile, emphasises customer experience, using data for decision making, being digital to the core, and continually experimenting to improve (Lange et al., 2018)

2.2 OVERVIEW OF DIGITAL CULTURE TRANSFORMATION

2.2.1 THE HISTORICAL CONTEXT OF THE CONCEPT OF DIGITAL CULTURE TRANSFORMATION

The field of organisational behaviour in relation to business performance begins as early as the 1930s. The Hawthorne studies at the Western Electric Company marked the first systematic attempt to understand the concept of culture in the work environment (Tharp, 2009). The study uncovered that individuals modify their behaviour in response to their awareness of being observed at the workplace. The phenomenon known as the 'Hawthorne Effect' sets a significant step forward in qualitative research focusing on understanding organisational culture. Nevertheless, the research has been criticised as being rather blunt and lacking scientific objectivity in arriving at various conclusions (Carey, 1967).

Since the early 1980s, the exploration of organisational culture has steadily gained prominence. The upsurge of interest in organisational culture was driven by heightened competition in the international market, primarily related to the success of the Japanese in various sectors during that time. Academics and practitioners were curious whether the Japanese corporate values, attitudes, and behaviours are the critical success factors of their superior business performance (Tharp, 2009). Since then, organisational culture has been increasingly recognised as an essential variable that positively affects organisational performance and long-term effectiveness (Cameron & Quinn, 2006; Tharp, 2009).

In recent decades, the term ‘digital transformation’ has emerged as the core of the IR 4.0 (Berghaus, 2018). Throughout the 1990s and early 2000, the term ‘digital culture’ emerged alongside the term ‘technoculture’ and ‘cyberculture’ introduced in several research works (Penley & Ross, 1991; Bell, 2001). However, a limitation of the previous research works is the absence of uniformity in which its institutional ecology is still not firmly set. Nonetheless, several research works (Microsoft, 2017; Swati Kamath, 2019) discussed ‘digital culture’ as a concept in terms of how people interact with technology. Digital transformation focuses on the end-to-end process of digitisation and integration into a digital ecosystem (Hamidi et al., 2018), which fundamentally alters people’s lives and work (Vey et al., 2017; Hamidi et al., 2018). It concern not only technology adoption but includes a cultural shift to support the change that focuses on improving the experience of customers, employees, suppliers, partners, and stakeholder (Hartl & Hess, 2017; Hemerling et al., 2018; Lange et al., 2018; Hartl, 2019; Savic, 2019).

According to Hyvönen, (2018), the cultivation of digital culture has been linked to creating a positive virtuous cycle, in which digital culture increases the adoption of digital technologies, thus nurturing the digital culture. The process of shifting the organisational culture requires digital culture transformation. It is a process of changing the workforce’s hearts, minds, and skills throughout an entire organisation. Culture transformation involves a complete reassessment and overhaul of an organisation’s character (White, 2020) towards creating an organisation-wide metamorphosis (Berghaus, 2018) to become an improved version of its present state. In culture transformation, the ultimate goal is to reshape the organisation’s identity to achieve a more robust performance (Moldovan & Macarieie, 2014).

2.2.2 THE IMPORTANCE OF DIGITAL CULTURE TRANSFORMATION IN A DIGITAL TRANSFORMATION

Various studies acknowledged that digital culture transformation is a critical determinant of a successful digital transformation (Hartl & Hess, 2017; Microsoft & IDC Asia Pacific, 2018; Lange et al., 2018; Hemerling et al., 2018; Hartl, 2019). Based on the studies, among the crucial importance of digital cultural transformation in a digital transformation are:

a) Accelerate digital technologies adoption, thus, the digital transformation.

Digital culture transformation is vital to developing a digital culture (McKinsey & Company, 2018; Lange et al., 2018). When the digital culture is in place, employees will have access to all necessary information and training to adopt the new technologies

(Microsoft, 2017) and build new digital capabilities to serve customers in a better way (Westerman et al., 2014). By transforming the organisational culture, the businesses will have more clarity on the purpose of going digital, hence increasing the organisational commitment towards technology adoption. These imperatives will boost digital transformation adoption, which subsequently improves customer experience, enhances operational excellence, and change the business model (Hie, 2019)

b) Organisations gain competitive advantages from a digital transformation that focuses on digital culture transformation.

Unique to digital transformation that emphasises improving the digital culture, the transformation initiative empowers people to deliver results faster, particularly speeding up the decision-making process for a much faster response to customers' needs (Hemerling et al., 2018). This argument implies that an organisation could gain the first-mover advantage in capturing value in the emerging digital economy. Although developing digital culture takes time, early adopters will be better positioned to compete in this fast-paced, digitised and multichannel world (Hie, 2019) driven by faster technology adoption. This effort will ultimately lead to better business outcomes.

c) Digital culture transformation ensures sustainable performance in a digital transformation.

In a Boston Consulting Group (BCG) study, about 80% of the companies that focused on digital culture in a digital transformation sustained more robust performance than that did not (Hemerling et al., 2018). Furthermore, according to Hemerling et al. (2018), an organisation is at risk of transformation failure by neglecting the organisational culture aspect. This argument suggests that digital culture transformation increases the success rate of a digital transformation and shall take precedence. In addition, by focusing on digital culture in a digital transformation, the organisation will ensure long-term success while reducing the resistance to change.

2.3 THEORISING DIGITAL CULTURE TRANSFORMATION

"*Culture eats strategy for breakfast*", a quote from the well-known management guru Peter Drucker, illustrated that empowering culture is an effective and surer route in translating strategy into action. Relating to the quote, implementing an effective digital strategy has to be augmented by the right culture. Digital culture is becoming an essential theme for organisations that aim to capture opportunities in this new digital era. This situation signalled the urgency for organisations to

embrace a digital culture. To achieve a robust digital culture, Capgemini, (2011) highlights the need for organisations to carefully manage the process of implementing the digital culture. Despite the urgency felt by scholars and practitioners to understand how to embark on digital culture transformation, the literature seems to lack a shared approach to studying and theorising about this.

Furthermore, there is no widely accepted framework to guide the cultivation of the digital culture in a digital transformation journey, particularly for SMEs (Tuukkanen et al., 2021). Driven by this gap, this thesis aims to connect the people aspect and technological sides by developing a digital culture transformation framework guided by the existing theoretical framework. Its significance is to address the low adoption of digital transformation within SMEs in Malaysia through culture transformation. Therefore, it is essential to understand the fundamental theoretical basis of organisational transformation. In addition, it is vital to review theoretical and practical knowledge of the relevant frameworks and models to understand better the critical factors that promote the increased adoption of digital technology.

2.3.1 LEWIN'S ORGANISATIONAL CHANGE THEORY

One often scrutinized model for organisational transformation by the creator considered the theorist among theorists is Lewin's organisational change model. Lewin's organisational change theory becomes the foundational stone of the organisational development field of research, theory, and practice. The theory provides theoretical underpinnings and a basis for building the knowledge underlying any change in a human system while offering a pragmatic approach for organisational change (McLean, 2006). Lewin (1947) introduced a process model that explains the movement of an organisation from the current state to the desired state. It is a three-step model (also known as "Unfreeze-Change-Refreeze" model), which postulates that organisational change involves transitioning from one static state to another. However, the process model has been criticized as too simple and excessively linear by several researchers (Palmer & Dunford, 1997; Rosch, 2002)

Nevertheless, the model remains relevant, structured and plan oriented. Various studies that study organisational change have adopted the model (Tonder, 2004; Grant et al., 2005; McLean, 2006; By, 2005; Gilley et al., 2009). According to Lewin (1951), a pre-requisite to any transformation is the need to find the motivation for change. However, in some cases, people are demotivated by the changes. Based on various research, up to 90% of organisational transformation initiative was unsuccessful, mainly due to people resistance (Bibler, 1989; Beer & Nohria, 2000; Cope, 2003; Burns, 2004; Kotter, 2008). Lewin addressed this by introducing the force-field analysis, an analysis

methodology to determine the possible resistance to change. The principle from the analysis is that in order for change to occur, the driving force must exceed the restraining force.

However, a successful organisational transformation is not just about resolving people's resistance. Resolving the resistance force does not guarantee that the outcome of the transformation will be significant. Therefore, Lewin's change model will need to be supported by other methodologies for analysis to have a broader view of the motivational factors for change. A more disciplined methodology that specifies the “what" and “how" is needed to achieve an effective organisational transformation. One of the transformation models that provide more detail by identifying specific change areas is the McKinsey 7-S model. The model could be a suitable framework of analysis to strengthen Lewin’s model. It clarifies what factors within the organisation need to be analysed and improved.

2.3.2 MCKINSEY 7-S FRAMEWORK

The McKinsey 7-S model originated by Peters & Waterman, (1982) underscores seven critical aspects of the organisation that need to be analysed in detail and how they affect each other, namely; 1) strategy, 2) structure, 3) systems, 4) shared values, 5) style, 6) staff, and 7) skills. These elements need to be aligned in order to be successful in executing transformation. The beauty of the McKinsey 7-S model is that it recognises the ‘soft’ elements as a critical dimension that must be aligned with the ‘hard’ aspects for any organisation to perform well. The model has been adopted in a study by Kukkamalla et al., (2020) to examine a business model innovation and a study by Kocaoglu & Demir, (2019) to evaluate the maturity of a business through the transition to digital transformation.

However, the application of the McKinsey 7-S model in the previous studies is constrained to a single case study, hence limiting the concept generalisation. Although the model was adopted to assess the maturity level of digital transformation in a business, the author did not explain how the McKinsey 7-S model evaluates the rate of digital transformation adoption. The model is considered a static model as it does not explain what should be done for further improvement. It is suitable to assess changes in the organisation's internal environment. However, it ignored the external elements that may affect organisational performance. In several studies, the model has been criticised for inadequate empirical evidence to support the explanation of the interdependency of the elements.

Nonetheless, the McKinsey 7-S model maps a constellation of seven interacting factors with shared values as superordinate goals in the core of the model. The shared values element is a collective

value system that acts as a central foundation for organisational culture (Kennedy & Deal, 1982). The organisational culture is formed around shared beliefs of what is essential and the values that determine what the organisation stands for. It is the key that enables people to function effectively together to achieve a high-performance organisation. The significance of organisational culture has been discussed by various researchers in the field of research, theory, and practice of organisational development (By, 2005; Whelan, 2016; Majeed et al., 2010; Schein, 2010; Ibidunni et al., 2013).

The dominant view in the organisational development field of research is that culture is a variable in an organisation (Cameron & Quinn, 2006; Tharp, 2009), which means that it exists within the organisation, is identifiable, and can be analysed using appropriate methods. In addition, culture plays a vital role as a control mechanism in shaping the organisational members' behaviour (Ashkansy et al., 2011). Majority of the social organisational systems (i.e. business, club, community or nation) attempt to control their culture by limiting or encouraging certain behaviour of their members. Doing so allows the organisation to shape its culture towards achieving various outcomes. For example, a business could promote the use of the computer, AI, ML or data analytics to increase productivity in its operation, which ultimately increases the adoption of digital transformation.

Understanding the concept of culture is necessary for studying culture in an ICT context and how it can influence the successful implementation and use of technology (Leidner and Kayworth 2006; Hartl & Hess, 2017). The systematic approach to modifying an organisation's culture towards increased technology adoption will be through organisational development. The science-based process of organisational development helps businesses respond to internal or external changes effectively while proactively shaping their strategic direction. Furthermore, it plays a crucial role in helping organisations to continuously improve and change the underlying assumptions and values governing their behaviours.

2.3.3 TECHNOLOGY ACCEPTANCE MODEL (TAM)

One of the relevant theoretical models in the field of organisational development related to technology adoption is the Technology Acceptance Model (TAM). The TAM, which was developed by Davis, (1989), is considered the most widely applied framework for measuring the degree of technology adoption due to the simplicity of the model. Rooted in the Theory of Reasoned Action (TRA) by Fishbein, M., & Ajzen, I. (1975), TAM is a framework that provides an understanding of the cognitive processes of technology users and how they will respond to adopting and integrating

new technology within their life (Davis et al., 1989). According to Davis et al., (1989) people form attitudes and intentions towards learning to use the latest technology before directly using it.

Davis et al., (1989) suggested that people form a cognitive decision and create a bias before even starting to interact with a piece of technology. Thus, an individual attitude towards a particular technology will be influenced by the users' beliefs about the perceived usefulness and perceived ease of use of the technology. Venkatesh et al., (1996, 2003) modified the TAM and introduced the final version of TAM. The final version posits that perceived usefulness and perceived ease of use directly influence behaviour intention, thus eliminating the need for the attitude construct. The model assumes that when users perceive a type of technology is useful and easy to use, they will be willing to use it.

However, the TAM's main limitation concerns the users' behaviour intention variable. Evaluating the technology's usefulness and ease of use is undoubtedly a subjective means. It is commonly affected by interpersonal influence, such as when words of mouth by a colleague or friend influence a person. Although it may be true in theory for the personal use of technology, the conceptualisation may not be accurate in a business environment. For example, a company's perception of digital transformation benefits may not be shared widely among industry players. The company will do as much as possible to protect its recipe for success to maintain its competitive advantage. As a result, the lack of knowledge sharing by the business community leads to a limited preconception of the usefulness of digital transformation, which could decrease technology adoption by other businesses.

Another limitation of TAM is that it does not explicitly include any social variables. External factors such as the recent Covid-19 pandemic could also influence behavioural intention towards adopting digital technology. The Covid-19 pandemic left everyone with no choice but to switch to the digitalisation of their business to remain relevant, regardless of whether they thoroughly consider the adoption of digital technology will be useful or easy to use in their business or not. However, blindly adopting digital technology without the right culture will lead to potential failure in implementation. The TAM also ignored other factors such as intergenerational cultural differences as critical variables which could influence acceptance and willingness to adopt the technology.

In the case of SMEs, the current business owners (typically coming from the older generation) may be rooted in their traditional way of doing business. The newer generation of potential succeeding owners (currently sitting on the company's management positions) is perceived to be much more technologically savvy. However, they have less influence in deciding for the company to embark

on digital transformation. The current business owners still dominate the decision-making process. However, they are perceived to be less receptive to digitalisation but rather seek to prioritise business stability. Hence, applying TAM to predict the adoption of digital technology may not be effective in this case. The TAM will need to be supported by other relevant frameworks to strengthen the analysis of key variables that drive intention towards technology adoption.

2.3.4 THEORY OF PLANNED BEHAVIOUR (TPB)

The Theory of Planned Behaviour (TPB) introduced by Ajzen, (1991) could be a suitable theoretical framework to serve as an alternative to TAM in studying digital technology adoption in an organisation. The TPB is an extension of the TRA introduced by Fishbein, M., & Ajzen, I. (1975). Since both TAM and TPB are an adaptation of TRA, some concepts overlap between these theories. Thus, the TRA is not considered the directly referred theory in this research. Both TAM and TPB frameworks were developed out of a theoretical belief that considered human attitude as a significant element that affects behaviour (Thurstone & Chave, 1929; Smith, 1932; Stagner, 1942).

The TPB consists of three primary constructs. The first construct is the attitude towards the act or behaviour (i.e. individual belief and evaluation of the behaviour). The second construct is called subjective norm (i.e. how others in society view the behaviour). Finally, a third construct is perceived behavioural control (i.e., individual belief that one controls a specific action or behaviour). The TPB builds on the TRA, but the key differentiator in TPB is that it incorporates perceived behavioural control as an independent element that influences behaviour. The perceived behavioural control in TPB is similar to the concept of perceived self-efficacy in the Social Cognitive Theory by Bandura, (1977, 1982), which postulates that individual confidence strongly influences their behaviour and ability to perform it.

The TPB posits that these conceptually independent determinants of intention are the best predictors for forming a behavioural intention. In turn, they will lead to the person actually displaying the behaviour or act. Thus, the model seeks to address individual motivators in a unique context to explain the overall performance of a particular behaviour. In the context of technology adoption, the model clarifies aspects that drive individual human behaviour as they interact with technologies. This underlying principle aligns with this research in understanding how organisational culture influences the organisation's adoption of digital transformation. According to Ajzen, (1991), the more favourable the attitude, subjective norms and perceived behavioural control, the stronger the intention to perform such behaviour.

For example, an SME may think adopting an electronic point of sales (ePOS) system will improve its customer data collection (i.e. the SME's attitude). Notably, other players in the market also indicated that the ePOS is beneficial as it enables customer data analytics, leading to personalised marketing and increased sales (i.e., subjective norms). The SME also seems to have a sufficient budget to spend on the ePOS (i.e. the SME's perceived behavioural control). Therefore, based on this assessment through the TPB framework, the likelihood for the SME to adopt the ePOS system into the business is high. The SME is perceived to have a strong behavioural intention to purchase the system based on the TPB framework.

Scholars widely agreed that the TPB framework demonstrated a robust ability to predict actual behaviour, such as Information Technology adoption at the individual level (Gong & Yan, 2004; Shiau & George, 2014). The TPB has a strong predictive power to foresee actual behaviour as it links beliefs to behaviour. The model provides a better understanding of issues driving individual human behaviour as they interact with information technologies. However, the limitation of the TPB is that the model does not explain how to actualise the behavioural intention. Although there may be a positive behavioural intention, the model does not account for the gap between behavioural intention and the actual performance of the behaviour.

Another limitation to the TPB is that it assumes that people behave rationally, characterised by linear decision-making processes. Rational behaviour in this context refers to the individual's ability to decide in accordance with a step-by-step procedure outlined by the model. Whereas, in the real world application, people do not necessarily make every decision through the motions outlined in the TPB. There are situations where some decisions are made based on instincts or reactions to highly intense situations. Furthermore, the TPB ignored other behavioural factors like emotions, cultural norms, social classes, genders, ages, or individual habits, which could affect the perception or beliefs and tendency to take action.

Another interesting observation about the theory is that it limits the perspective only on an individual basis. The issue of whether the same way of thinking applies to society remains questionable. An organisation typically consist of several individuals who may have different attitudes and behaviours. The organisational culture is the crucial element that weaves their behaviours towards a unified purpose. However, the theories remain silent on how organisational culture influences individual behaviour. Therefore, this research will examine whether these existing theoretical frameworks can be applied to an organisational context. In addition, this

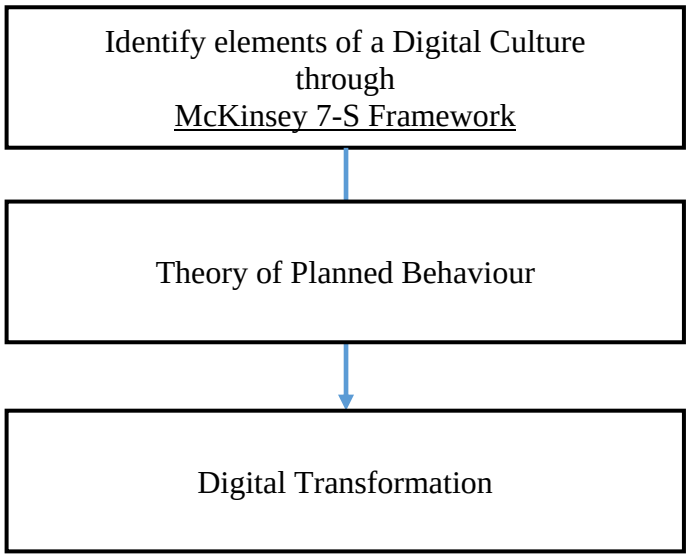
research will identify what cultural determinants influence organisational behavioural intention towards digital transformation adoption.

2.3.5 THEORETICAL FRAMEWORK FOR THIS RESEARCH

The theoretical framework is based on existing organisational development research and practice theories. It serves as a blueprint and foundation upon which this research is constructed. The theoretical framework guides the discussion in this research to be within the confines of the accepted theoretical principles, constructs, concepts, and tenants of several theories. The unique application of the selected theories underpins the knowledge related to the phenomenon of digital transformation through culture. Referring to what Ajzen, (1991) did to establish the TPB, the author of this thesis has combined some core constructs from relevant theories to develop the theoretical framework in this research.

The relevant theoretical frameworks adopted for this research are the McKinsey 7-S framework and the Theory of Planned Behaviour. *Figure 2.1* below shows the theoretical framework for this study.

Figure 2. 1: Theoretical Framework for Digital Culture Transformation



Source: developed by the author for this research

As highlighted in the previous sections, an effective digital transformation should be driven by organisational culture. In the context of SMEs in Malaysia, several studies cited that the low adoption of digital transformation by them is due to the absence of digital culture. However, limited attention has been paid to how digital culture transformation could lead to higher adoption of digital transformation (Pradana et al., 2022). This thesis explores the elements of digital culture, how these elements drive the organisational behaviour to adopt technology and conceptualises this to better understand and study digital culture transformation as a distinct phenomenon. As a result, this theoretical framework is developed to support future research on the process of digital culture transformation.

The theoretical framework for this research adopts several existing theories. The McKinsey 7-S and TPB frameworks were selected. The selected theories demonstrated some corresponding principles relevant to this research to study the adoption of digital technology through culture transformation. The construct of the theoretical framework for this research can be divided into two main parts. Which are; 1) identifying the elements of digital culture using the McKinsey 7-S framework and 2) assessing and predicting the organisational behaviour to adopt digital transformation using the TPB.

2.3.6 IDENTIFY ELEMENTS OF DIGITAL CULTURE THROUGH THE MCKINSEY 7-S FRAMEWORK

Research seeking to understand the adoption of digital transformation will benefit from taking an epistemological perspective to understand the nature of the knowledge and learning about social reality. This process involved the examination of digital culture through qualitative research in the context of the study. The McKinsey 7-S framework guides the analysis in defining the elements of digital culture. It is a practical diagnostic model to examine how the various aspects of the organisation work together and determine the best way to implement a strategy for improvement.

Various researchers adopted the McKinsey 7-S framework to analyse a company's organisational design in technology adoption (Kocaoglu & Demir, 2019; Kukkamalla et al., 2020). The basic premise of this model is that seven interconnected elements co-exist with shared values positioned as central to the development of all the other critical elements. The McKinsey 7-S framework recognised that it is essential to characterise the organisational aspects, including its cultural elements, to achieve an effective transformation. In the context of digital transformation, the same principle applies, which means examining digital culture elements will be the prerequisite for an effective digital transformation.

Notably, digital culture is still a new concept that requires attention. Therefore, adopting the McKinsey 7-S framework will enable a more structured approach to refining and characterising the digital culture. Furthermore, the McKinsey 7-S framework guides this research in terms of identifying the 'hard' and 'soft' elements of an organisation that are vital in a digital transformation. The 'hard' elements of the McKinsey 7-S framework (i.e. strategy, structure and system) are identifiable and influenced by management. In contrast, the 'soft' elements (i.e. shared values, skills, staff and style) are intangible and influenced by culture.

Both the 'hard' and 'soft' elements essentially shape the organisational culture. By knowing these elements in the context of digital culture, the organisation could strategise and plan for an effective transformation accordingly. Once the elements of the digital culture are identified, these elements will become critical variables that will be tested using another theoretical framework. This is because McKinsey 7-S is a static model that does not have the capability to evaluate or predict technology adoption. Therefore, the TPB will be the chosen framework to support the McKinsey 7-S framework to determine how elements of digital culture affect digital technology adoption in an organisation.

2.3.7 ASSESS AND PREDICT THE ORGANISATIONAL BEHAVIOUR TO ADOPT DIGITAL TRANSFORMATION

Social psychology researchers revealed that predicting an individual's attitude towards the behaviour is the best way to predict the performance of the behaviour (Fishbein & Ajzen, 1975). Scholars widely agreed that the TPB framework demonstrated a robust ability to predict the performance of the behaviour, such as technology adoption. Various researchers have adopted the theory to examine individuals' intentions to adopt technology, such as Gong & Yan, (2004), Akhter Shareef et al., (2009), Teo et al., (2010), Shiau & George, (2014) and Choi & Park, (2020). The model is also appropriate for examining technology adoption at the organisational level, as applied in studies by Nasco et al., (2007) and Knabe, (2012).

In the context of the SME, Nasco et al., (2007) used the TPB to predict e-commerce adoption by businesses. The application of TPB is appropriate to study the adoption of digital transformation for SMEs. The rationale is that the model provides more specific information and insight into why individuals or society might be reluctant to use technology (Mathieson, 1991). The information obtained from the TPB could be valuable insofar as it identifies possible sources of resistance. Dealing with employees' resistance and reaction towards the digital transformation agenda is

critical to achieving an effective transformation, aligning with Lewin's (1951) organisational change theory principle.

However, study on technology adoption using the TPB in SMEs covering a broader spectrum of digital transformation is limited. Hence, the application of the TPB in this research could provide a better understanding of the adoption of digital transformation for SMEs. The SMEs' inability to leverage digital technology could lead to the potential loss of their competitive advantage and business sustainability. Therefore, it is crucial to understand how people decide whether they will adopt technology or not in their business. The issue that influences their decision is affected by various factors such as differences in systems, individuals, and context. If this issue can be identified, the organisation can plan to improve its technology adoption accordingly.

An elicitation study establishes the basis for identifying the key variables to assess the theory in a specific population outlined by the TPB framework. The elicitation study enables the researcher to determine certain beliefs of a specific population. For instance, the behavioural beliefs for SMEs could be that cultivating a digital culture is vital to increase the adoption of digital transformation and subsequently lead to greater business performance and sustainability. Understanding these behavioural beliefs has to be context-specific. Hence, qualitative research through interviews with SMEs undergoing a successful digital transformation will be the right approach (Lekvall & Wahlbin, 2001; Patel & Davidson, 2011).

2.4 KEY ELEMENTS OF DIGITAL CULTURE TRANSFORMATION

Identifying the common underlying elements central to organisational culture is critical in achieving organisational effectiveness (Peters & Waterman, 1982). In the context of digital transformation, the elements of digital culture refer to the common underlying characteristics fundamental to digital culture (Hartl, 2019). Furthermore, these elements must be aligned to successfully execute digital transformation (Kocaoglu & Demir, 2019). According to Tuukkanen et al., (2021), recognising the digital culture elements will increase the success rate of a digital transformation, particularly for the SME. Based on the thematic analysis of various research, six common critical cultural elements linked to a successful digital transformation have been identified (as listed in *Table 2.1* below). The following sub-sections will elaborate each of the elements, being the critical variables for this research.

Table 2. 1: Digital Culture Elements

No	Thematic areas	Key characteristics and references
1	Digital vision	• Digital transformation starts with a transformative vision of how the organisation will be different in the digital world and then engage the employees in materialising the vision (Westerman et al., 2014). • Vision is a foundation that guides the organisation's digital transformation efforts (Hyvönen, 2018) • SMEs that are accelerating their transition towards a more digitalised company must have a long-term strategic digital vision and strategy (Priyono et al., 2020)
2	Innovation culture	• Innovation commonly refers to changes and improvement by creating and implementing new processes or products, which result in greater efficacy and quality (Mulgan & Albury, 2003; Tohidi & Jabbari, 2012). • An organisational culture that fosters risk-taking and values entrepreneurship lays the basis for digital innovation and success (Hartl & Hess, 2017). • Innovation culture is the key to SMEs' long-term competitiveness as they may get a higher competitive advantage (Aspplund, 2003; Aksoy, 2017)
3	Agile Way of Working	• Digital transformation requires a culture transformation, enabling new ways of working with a different skill set (Hartl, 2019). • To develop a thriving digital culture, the organisation need to provide the employees with a clear business rationale for embracing both new technologies and new ways of working (Carr et al., 2019). • Digital culture transformation focuses on being agile, emphasises customer experience, using data for decision making, being digital to the core, and continually experimenting to improve (Lange et al., 2018) • Digitally advanced companies cultivate a culture that embraces collaboration, risk-taking, and continuous learning (Kane et al., 2017)
4	Customer-centricity	• Drivers of digital transformation are process engineering, new technologies, and digital business development, supported by digital leadership and culture, cloud technology and data, customer centricity, and digital marketing (Peter et al., 2020). • Customer-centricity in digital transformation encourages data across all processes and customer touchpoints to develop a digital customer-centric culture (Microsoft & IDC Asia Pacific, 2018). • By focusing on solving the underlying problem (through digital technology) that the customer is facing, the business becomes more customer-centric and more value-centric (Rogers, 2016)
5	Collaboration	• Collaboration is among the critical ingredients of a digitally matured organisation (Kane et al., 2015; Lange et al., 2018; Parviainen et al., 2017; World Economic Forum, 2021). • Collaborative culture has been identified as one of the key pillars of digital culture (World Economic Forum, 2021)

		• Collaborative working environments are among the key cultural attributes that foster digital transformation success (Capgemini, 2011)
6	Digital leadership	• Digital transformation can only be successful if there is a well-founded strategy and leadership (Schwertner, 2017). • Business leaders are the driver of digital vision and the cornerstone of successful digital strategies (Fitzgerald et al., 2014) • Digital leadership is about building a shared theory of success for digital transformation (Von Kutzschenbach, 2017). • A robust digital leadership leads to greater efficiency and scalability in its digital efforts (Westerman et al., 2014).

Source: developed by the author, based on the analysis of the articles cited.

2.4.1 DIGITAL VISION

Leading digital transformation requires the organisation to have a vision of transforming its company for a digital world. Digital transformation starts with a transformative vision of how the organisation will be different in the digital world and then engage the employees in materialising the vision (Westerman et al., 2014). Digital Vision is a foundation that guides the organisation (Westerman et al., 2014; Hyvönen, 2018), which establishes its future positioning for digital transformation efforts (Holotiuk & Beimborn, 2017). Digital Vision can help the company drive the change that breaks the traditional silos across the organisation (Hyvönen, 2018) and change how the company operates in the digital transformation (Capgemini, 2011). In previous studies by Ambiose (2000) and Priyono et al., (2020) that focused on SMEs revealed that companies that are accelerating their transition towards a more digitalised company must have a long-term digital vision and strategy.

Although previous research works (Capgemini, 2011; Westerman et al., 2014; Hyvönen, 2018), validated the importance of vision in digital transformation, their research focuses on large enterprises rather than SMEs. Furthermore, one of the limitations of the previous studies is that most of them adopt a qualitative case study method with limited generalisability. Nonetheless, a few research works discussed the significance of digital vision in the SME context (Ambiose, 2000; Priyono et al., 2020), but their research focuses on SMEs in Canada and Indonesia, respectively. Hence may not be transferable to other nations due to differentiation in the local culture. Furthermore, previous research discussed digital vision as a standalone strategic imperative rather than integrating it as part of the overall digital culture elements that drive performance in digital transformation.

As a result, this issue may lead to a lack of clarity for businesses, particularly SMEs, in articulating their overall purpose of embarking on the digital transformation journey. Research by Ambiose (2000) analysed the relationship of vision to business performance using Kendall's tau correlation coefficient and confirmed a positive and significant correlation between having a strategic vision to business performance, especially on comparable sales and profits for the SME. However, the research ignored other key business performance variables. For example, it did not investigate the significance of having a vision on operational (i.e., productivity) and customer satisfaction.

Accelerating technological advancement in the era of IR 4.0 and the Covid-19 pandemic have changed the market landscape and speeded up the need for digital transformation (GlobalData, 2020; Priyono et al., 2020; Ernst & Young, 2020). These structural changes warrant an updated review of the significance of a digital vision and its impact on business performance. A recent study by Priyono et al., (2020) analysed how the SMEs in Indonesia pursue digital transformation amid the Covid-19 pandemic using multiple case study designs with qualitative analysis. However, the previous study by Priyono et al., (2020) only involved seven SMEs, indicating the limitation of the study, which is the lack of statistical inference and thin generalisability.

2.4.2 INNOVATION CULTURE

Innovation commonly refers to changes and improvement by creating and implementing new processes or products, which result in greater efficacy and quality (Mulgan & Albury, 2003; Tohidi & Jabbari, 2012). Digital innovation is essentially concerned with the use of digital technologies to create novel digitally enabled products (Berghaus, 2018), which lead to the creation of new market offerings and business models (Nambisan et al., 2017; Hyvönen, 2018). Innovation culture is widely viewed as an imperative for a successful digital transformation (Kane et al., 2015; Vey et al., 2017; Burchardt & Maisch, 2019). For this reason, innovation culture is considered among the critical cultural elements of a digitally enabled organisation (Kane et al., 2015; Groussolles et al., 2018).

There is a broad agreement among scholars on the importance of innovation culture for SMEs (Aspplund, 2003; Abdul et al., 2015; Aksoy, 2017; Hanifah et al., 2017; Apsalone, 2018; Tang et al., 2020). Various works of research have been conducted that examine innovation culture and its impact on the performance of SMEs (Abouzeedan, 2011; Hanifah et al., 2017; Aksoy, 2017; Tang et al., 2020; Singh & Hanafi, 2020). Most researchers leaned strongly on statistical analysis, while some adopt non-financial approaches to assess SME performance in relation to an innovation culture. Notably, innovation culture generally contributes positively to SME performance in terms

of more significant competitive advantage (Aspplund, 2003; Aksoy, 2017), more robust innovative performance (Hanifah et al., 2017), and better marketing performance (Aksoy, 2017; Singh & Hanafi, 2020).

Limitations to the previous studies mainly relate to the context. As highlighted above, innovation culture is a crucial element of a digital transformation. However, previous studies focus on large enterprises. It could be argued that it is easier for large enterprises to implement radical innovation in digital transformation since they have more resources than SMEs (Tarute et al., 2018). Previous studies on innovation culture for SMEs do not discuss innovation culture in relation to the context of digital transformation. Earlier studies on the significance of innovation culture for Malaysian SMEs were done in the context of organisational learning (Abdul et al., 2015; Ur Rehman et al., 2019) and human capital development (Hanifah et al., 2017). Additional study is required to understand the key tenets of the significance of innovation culture for the Malaysian SME in the digital transformation context.

2.4.3 AGILE WAYS OF WORKING

Previous work that conceptualises new work practices as new ways of working was done in a seminal work by Lefebvre, H. (1974). The concept originated from the end of the 1960s to the early 1970s, following the emergence of mobile and paperless offices, flexible workplaces and video conferencing (van Meel, 2011). Later, a study by Blok et al., (2011) continued to develop the concept further by introducing a framework to understand how the new ways of working affect operational objectives in the modern world. Kingma, (2019) expanded the earlier works by providing a grounded theory on the concept of new ways of working in virtualising organisations. Several researchers authenticated that those new ways of working led to improved performance of a knowledge-intensive organisation (Ruostela et al., 2015) and positively affected employees' work engagement (Gerards et al., 2018).

In the context of cultivating a thriving digital culture, Carr et al., (2019) claimed that new ways of working supported with a clear business rationale for embracing new technologies are essential elements to accelerate digital transformation. Various studies emphasise the importance of being agile as a vital characteristic of the new ways of working in a digital transformation (Westerman et al., 2014; Heavin & Power, 2018; Carr et al., 2019). Agile is a project management style that emphasises working in short bursts or sprints that allow for constant reassessment and adaptation. In addition, the agile way of working promotes collaboration, greater transparency, and interaction,

thus ensuring a successful digital culture transformation (Hemerling et al., 2018; Lange et al., 2018). Having a tolerance towards failure is another critical characteristic of an agile way of working in a digital culture transformation (Hartl, 2019).

2.4.4 CUSTOMER CENTRICITY

The market has now evolved into a customer-centric marketplace driven by digital technologies. Customers are highly demanding than before, and they have access to information through various digital technologies. Several research works investigate success factors to win customers in this era and revealed that being responsive to customers' needs and changing market conditions is the winning formula (Cooper, 2005; Capgemini, 2011). A study by Lamberti, (2013) conducted theoretical conceptualisation research to understand the construct and operational antecedents of customer-centricity. Steven, (2021) claimed that customer-centricity requires a business strategy that emphasises putting the customer first and at the core of the business to offer a positive experience and develop a long-term relationship.

Customer-centricity also has been identified in several recent research works (Peter et al., 2020; Steven, 2021) as one of the vital elements of a thriving digital culture. Research by Hartl & Hess, (2017) justified that customer-centric organisations emphasise meeting the changing customer needs, reflecting readiness to transform. As a result, it facilitates the digital transformation of organisations. Various studies by consulting firms on the value impact of having a customer-centricity culture in the context of digital transformation were conducted by Schmidt et al., (2017) and NTT Ltd., (2020). For example, according to research by the Deloitte consulting firm, customer-centric companies are 60% more profitable than companies that do not focus on customers (Schmidt et al., 2017). For SMEs, the enablement of a customer-centricity mindset in an organisation has to be driven by the leadership (Lamberti, 2013; Peter et al., 2020) and supported by a combination of technologies adoption (i.e. e-commerce, digital marketing, cloud technology, and data analytics)

2.4.5 COLLABORATION

Various researchers collectively agreed that having a collaborative culture is another critical characteristic of a new way of working in a digitally matured organisation (Kane et al., 2015; Lange et al., 2018; Parviainen et al., 2017; World Economic Forum, 2021). Researchers broadly proposed that companies seeking success in digital transformation need to make a fundamental shift towards an agile and collaborative culture that encourages risk in the interest of innovation organisations

(Kane et al., 2015; Lange et al., 2018; Parviainen et al., 2017). Collaborative working environments are among the key cultural attributes that foster digital transformation success (Capgemini, 2011)

According to Kane et al., (2015), more than 80% of digitally matured organisations recognize the benefits of collaboration. Increasing collaboration and risk-taking are essential for many organisations in cultural transformation. Collaborations will lead to greater customer focus while diminishing functional silos (Mierke & Williamson, 2017; Lange et al., 2018). Building a collaborative mindset and culture are prerequisites for successful digital transformation(Lange et al., 2018). In a study by World Economic Forum, (2021), collaborative culture has been identified as one of the key pillars of digital culture. Collaboration can happen within the internal organisation or involve external partners. Internally, the ICT department and business units must collaborate to deliver customer value through digital technology. Externally, adopting new technology sometimes requires new skillsets and capabilities, which are obtainable through collaboration with external partners who already possess those digital talents or capabilities (Kane et al., 2016; Barann et al., 2019).

2.4.6 DIGITAL LEADERSHIP

Leadership is vital in shaping the organisational culture. Previous research was done by Schein, (2010) and Belias & Koustelius, (2014) to explore the theoretical foundation of leadership and its influence in shaping organisational culture. In the context of digital transformation, digital leadership is crucial in transforming organisational culture towards digital culture. Digital leadership refers to a role figure who drives digital technology adoption through a digital vision and strategy (Fitzgerald et al., 2014), build relationships with multiple stakeholders (Cortellazzo et al., 2019), and then moves into management by putting in place people, processes, technology offerings, engagement model, structure and business model to realise that vision (Sainger, 2018).

Several research works have recognised the importance of digital leadership in driving digital transformation (Capgemini, 2012; Fitzgerald et al., 2014; Schwertner, 2017; Foerster-Metz et al., 2018; Sainger, 2018). According to Von Kutzschenbach, (2017), digital leadership essentially focus on building a shared theory of success for digital transformation. Previous research works investigating the best leadership style in the context of digital leadership were done by Holten & Brenner, (2015) and Sow & Aborbie, (2018). The literature review shows that transformational leadership is the most relevant and effective leadership style for digital leadership. Kane et al., (2017) suggested that having a transformative vision and a change-oriented mindset are essential

leadership traits in a digital transformation. Companies that excel in leadership capability are 26% more profitable in digital transformation than their peers that do not have digital leadership (Capgemini Consulting, 2012)

2.5 VALUE CREATION FROM DIGITAL TRANSFORMATION

Digital transformation has enabled businesses to create a competitive edge by adopting digital technologies to realise a new form of value creation (McDonald & Roswell-Jones, 2012; Cichosz et al., 2020). Value creation from digital transformation can be viewed from two broad dimensions: 1) macroeconomic impact and 2) microeconomic impact (Microsoft & IDC Asia Pacific, 2018). At the macroeconomic level, studies on the impact of technology on the digital economy were done by Atkinson & McKay, (2011), Hwa et al., (2017) and Sabbagh et al., (2013). In addition, various studies examined the impact at the microeconomic level that assesses the impact at the organisational level undergoing digital transformation (Capgemini, 2012; Tolboom, 2016; Microsoft & IDC Asia Pacific, 2018). While analysing the macroeconomic impact can be essential to understanding the holistic view of value creation from digital transformation. However, the focus of this research does not address this dimension due to more interest in digital transformation at the organisational level.

Values are created by any organisation depending on the sector, organisational sizes, geographical locations, operating models, and various other factors. In the context of SMEs, several studies were conducted to assess the impact of digital transformation on SMEs (Shettima & Sharma, 2014; Rassool & Dissanayake, 2019; Matarazzo et al., 2021). Many organisations acknowledge the potential to create value through digital transformation. However, they are still unclear exactly how much value they can create and where the value will come from within the organisation.

In the case of the Malaysian SME, research by SME Corp, (2018a) revealed that despite their adoption of digital technologies, almost half of the SMEs still do not have the right strategy on how to achieve sustainable value creation through their digital transformation. As a result, they are currently viewed as trapped in a computerisation chasm and blindly adopting digital technologies without a clear understanding of how to create value. This situation implies that SMEs still lacking in terms of having the right mindset and culture to ensure the success of their digital transformation efforts. To capture the maximum value available, organisations need to assess the value at stake and invest proportionally to that value.

Understanding the value creation model helps companies align their digital strategy and their operations to achieve better results (McDonald & Roswell-Jones, 2012). Based on thematic analysis, there is a common pattern in relation to value creation from digital transformation (Capgemini, 2011; McDonald & Jones, 2012; Westerman et al., 2014; International Data Corp, 2017; Microsoft & IDC Asia Pacific, 2018). Researchers widely highlighted that the primary goal of digital transformation is to create values in the three core areas: 1) financial, 2) operational benefits, and 3) customer experiences. These core areas can be classified as the *triple win*, which are:

1. **Financial performance**. This refers to winning for the business by achieving better financial performance. Increased revenue, decreased costs, and improved profit margins are the key financial gains from digital transformation that have been highlighted in previous studies. It is a tangible benefit that leads to business sustainability and a faster growth rate. In addition, values are delivered to internal stakeholders and directly affect shareholder value maximisation.
2. **Operational benefits.** This refers to winning for the business in achieving better operational performance. Based on previous research, digital transformation enables organisations to improve workers' productivity, process efficiency, enhanced marketing services, effective supply chain operations, and data-driven decision-making. Operational performance is a tangible benefit that creates value for internal stakeholders, i.e., business owners, managers, and employees, thereby impacting financial gains.
3. **Improved customer experience.** This refers to winning to customers through improvements in their buying experience. A personalised experience, improved customer engagement, improved customer services, and customer loyalty are among the key benefits of a digital transformation highlighted in the previous studies. The customer is the most crucial stakeholder of a business. Therefore, delivering services or products that improve the customer experience leads to increased sales, leading to financial gains.

The following sub-sections will elaborate further on each of the triple wins as mentioned above. The focus will be on the value impact of digital transformation driven by the cultivation of digital culture for SMEs. In addition, this research offers detailed analyses of the impact of broader sustainable business thinking, which is expected to be of interest to businesses, policymakers, and academic researchers.

2.5.1 FINANCIAL PERFORMANCE

Various studies revealed that the financial performance of digitally advanced companies essentially outperforms in many aspects compared to their peers (McDonald & Jones, 2012; Westerman et al., 2014; Hemerling et al., 2018; Microsoft & IDC Asia Pacific, 2018). It is notable that there is a positive correlation between digital transformation and the financial performance of digitally advanced companies. For example, according to Westerman et al., (2014) and Microsoft & IDC Asia Pacific, (2018), organisations that have embarked on their digital transformation journeys experienced 9% higher revenue from their assets. In addition to that, according to Microsoft & IDC Asia Pacific, (2018), an organisation that has embarked on digital transformation experienced a 16% improvement in profit margin and a 9.6% cost reduction yearly. In the context of SMEs, according to International Data Corp, (2017), the majority of the SMEs indicated that they benefitted through the digital transformation from an increase in revenue as well as a cost reduction.

Focusing on culture in a digital transformation is the key to a more significant financial gain. Hemerling et al., (2018) claimed that companies with a strong digital culture are most likely to sustain or achieve breakthrough financial performance from their digital transformation effort. The study revealed a clear link between the strength of a company's culture and its financial performance during digital transformation, both in the near term and the long term. The research discovered that companies with a strong culture achieved 24% TSR over five years. A more systematic and theoretical analysis is required to investigate in the context of SMEs. Although previous studies by International Data Corp (2017) and Microsoft & IDC Asia Pacific (2018) involved SMEs, however, their assessment disregarded the effect of culture on financial performance gained from digital transformation.

2.5.2 OPERATIONAL BENEFITS

Digital transformation is also widely known to create values in terms of operational benefits, translating into stakeholders' value creation. Several studies suggest that digital transformation leads to an increase in the operational efficiency of an organisation (Capgemini, 2011; McDonald & Jones, 2012; Microsoft & IDC Asia Pacific, 2018). Capgemini, (2011) claimed that companies implementing digital technology such as Enterprise Resource Planning (ERP) systems experienced a significant improvement in efficiency, quality, and supply chain processes. Furthermore, McDonald & Jones, (2012) cited that operational benefits gained from digital transformation could subsequently improve margins or reduce pricing. In the context of SMEs, according to Microsoft &

IDC Asia Pacific, (2018), SMEs that have embarked on their digital transformation journeys experienced a 15% improvement in productivity year-on-year. However, the findings from the previous study may be no longer valid, considering the acceleration of digital technology adoption due to the Covid-19 pandemic. Additional analysis to revalidate the earlier study's findings is required.

According to SME Corp. Malaysia, (2018a), the use of digital technology to improve operations such as ERP remains below 20% for small and micro-enterprises, predominantly limited due to their financial constraint. Only the medium-sized enterprise indicated slightly higher ERP adoption, around 20-30%. Although they may have the better financial capability to adopt this technology than small and micro-enterprises, their digital solution adoption rate remains low. Nonetheless, according to Microsoft & IDC Asia Pacific, (2018), SMEs that have embarked on their digital transformation journeys experienced a 15% improvement in productivity year-on-year. However, the limitation of the previous research is that they ignored the implication of the deficiency of digital culture among SMEs.

2.5.3 CUSTOMER EXPERIENCES

Transforming customer experiences is the top priority of digital transformation. The reason is that the customer experiences shape the customer’s expectations and level of satisfaction or dissatisfaction. Customer satisfaction is a function of convergence between customer expectations and the perceived quality of the products or services (Biesok & Wyród-Wróbel, 2011). Digital transformation creates value for enhanced customer experiences (Capgemini, 2011; Westerman et al., 2014; Schmidt et al., 2017; Reinartz et al., 2019; NTT Ltd., 2020). Improving customer experience through digital transformation takes place when businesses provide products or services that benefit the customers. Digital transformation allows businesses to capture customer data, perform data analytics, and generate insights to personalise their offerings to customers through an integrated customer experience (Capgemini, 2011; Deloitte, 2012; Westerman et al., 2014).

For example, in a US pharmacy retailer case study, digital transformation has significantly improved overall customer satisfaction scores from 86% to 91% within a year (Westerman et al., 2014). Through digital transformation, businesses deliver intangible benefits to customers, ultimately leading to customer satisfaction (Reddy & Reinartz, 2017). However, researchers argued that organisations could also gain a tangible benefit, which is better financial performance, by focusing on customer experiences in digital transformation (Schmidt et al., 2017; NTT Ltd., 2020). A recent

study by Iriqat & Jaradat, (2020) revealed a significant correlation between digital transformation and customer satisfaction. However, the previously mentioned research investigates customer satisfaction in the Palestinian telecom industry, which maybe not be applicable to other industries and countries because the concept is sensitive to a particular business context. Nevertheless, irrespective of the industry, the fundamental insight is that by creating positive customer experiences, businesses are expected to get repetitive customer purchases and increase loyalty, resulting in financial gains.

2.6 DIGITAL CULTURE TRANSFORMATION IMPLEMENTATION

Although it is notable that SMEs must focus on digital culture to achieve sustainable value creation from digital transformation, however, they still have a limited understanding of the process and mechanism of such digital culture transformation (Levy & Powell, 2002). Several critical aspects are required from the SME to implement the transformation. Among the common requirements to implement digital culture transformation are: 1) standalone unit for digital transformation, 2) continuous learning process, and 3) digital talent. The following sub-sections will elaborate further on these aspects as the key variables in this research.

2.6.1 STANDALONE UNIT FOR DIGITAL TRANSFORMATION

Companies that embark on digital transformation require specific organisational structures that embrace innovation. Andersson et al., (2016) suggested that the best approach to implement digital transformation is by having a "digital unit" that is free from corporate legacy and standardised business processes. This is also supported by Priyono et al., (2020), who highlighted that setting up a standalone unit responsible for implementing digital transformation is one of the critical aspects of implementing a digital culture for SMEs. Furthermore, Kostić, (2020) claimed that companies with a more resistant or slow culture would have better success in their transformation by having a central unit complementing the business units or a separate unit for digital transformation.

A standalone unit for digital transformation enables companies to avoid major disruptions and facilitates collaboration between divisions (Khancel, 2019). The standalone unit basically comprises a dedicated group of people to focus on implementing the digital transformation, which acts as a mechanism, in the form of committees, to coordinate transformation activities. The digital transformation requires business model innovation; hence to develop a new digital business model, a standalone unit that is separated from the other business units will enable quick learning while preventing conflicting agendas (Christensen, C. M. et al., 2016; Broekhuizen et al., 2018).

Furthermore, organising digital transformation activities in separate structures makes it easier for companies to demarcate the physically and ideologically of their old and new operations (Hess et al., 2016), thus ensuring the success of the transformation.

2.6.2 CONTINUOUS LEARNING

Digital transformation enables new ways of working, requiring a different skill set (Hartl, 2019). In the context of SMEs, they need to develop diverse skills, including using digital tools in marketing, planning, finance and operations (SME Corporation Malaysia, 2018). To address this, digitally advanced companies cultivate a culture that embraces continuous learning (Kane et al., 2017). This is supported by Vey et al., (2017) suggested that in times of digital transformation, learning and development professionals play an essential role in shaping a culture that is conducive to broad and constant learning as a prerequisite for the performance of the organisation and innovation. Previous studies by Salim & Sulaiman (2011) and Abdul et al., (2015) proved that organisational learning influences an organisation's innovative culture and performance for SMEs.

SME's commitment towards consistent action in upskilling their employees in digital transformation is paramount. Reis et al., (2018) suggested that a successful digital transformation requires a company to develop a wide range of capabilities depending on the business context and specific organisation’s needs. Apart from having skills in applying digital technology, employees also need to be equipped with future-ready skill sets such as complex problem solving, critical thinking and creativity for the digital economy (Lin, 2018). Organizational learning is about the acquisition of information, sharing knowledge and supporting continuous learning cycles (Abdul et al., 2015). Continuous learning encourages new ideas for new product development and enhances SMEs' acceptance of innovation in their business process.

2.6.3 DIGITAL TALENT

Having the right digital-savvy talent in place has been recognised as the key to unlocking success in digital transformations (McKinsey & Company, 2018b). Digital talent refers to employees who are competent with digital skills demanded by the industry. These people will drive the implementation of digital technology in their businesses. A workforce with digital skill sets will fulfil important digital transformation objectives by using technology to work with information and formulate ideas (Hsi, 2007). As a result, it will lead to cultivating digital culture within the organisation that promotes a collaborative, creative and autonomous working environment. At the

same time, having a digital culture will attract more digital talent to join the organisation (Hemerling et al., 2018).

According to Ghosh, (2019) organisations need to hire talent based on their learning agility and focus on reskilling the existing employees to adapt to the new ways of working. Digital talent needs to have the "hard digital skill" such as data analytics and "soft digital skill" that constitute a "digital-first mindset", which are necessary for a successful digital transformation (Buvat et al., 2017; Nair, 2019). Recruitment plays a vital role during digital transformation as they need to hire employees with digital skills and abilities to digitalise their business. They must be able to attract digital talent and develop them by creating an environment that prioritises and rewards continuous learning (Buvat et al., 2017). Digital talent is critical to any organisation as it can accelerate digital and culture transformation, leading to higher competitive advantage for the company.

2.7 DEBATES AND GAPS FOUND IN THE LITERATURE

From the literature review, it is noted that there are three main gaps in the literature which are: 1) gap in the characterisation of digital culture elements, 2) gap in understanding of value creation from digital transformation for SMEs, and 3) gap in digital culture transformation implementation process.

Gap in the characterisation of digital culture elements.

A recent study by Bollmer, (2018) provides a theoretical understanding of digital culture. However, the author theorised the concept from a societal perspective and disregarded the link to a company's digital transformation. Research works by Bollmer, (2018) and Hyvönen, (2018) study the adoption of technology by cultivating digital culture. However, previous studies are still lacking in their construct validity (i.e., the quality of conceptualisation), leading to the potential inaccuracy of observations. To address this issue, Cortellazzo et al., (2019) suggested further research to investigate how culture affects the effectiveness of digital transformation implementation.

The importance of having an organisational culture, particularly digital culture that supports digital transformation, was highlighted in various research (Hartl & Hess, 2017; Microsoft, 2017). Although various studies investigate the relationship of digital culture to the adoption of digital technologies (Bollmer, 2018; Hyvönen, 2018; McKinsey & Company, 2018; Lange et al., 2018; Hie, 2019), previous studies were conducted on large enterprises and only involved a limited number of case studies hence limiting the concept's generalisation due to an inadequate research sample. Although a study by Microsoft & IDC Asia Pacific, (2018) included SMEs in their research,

however, they disregarded the focus on the importance of culture to digital transformation in their research.

Previous research works recognised that the cultivation of the digital culture consequently accelerates the adoption of digital transformation, creates a competitive advantage, and ensures sustainable business performance (Hartl & Hess, 2017; Microsoft, 2017; Microsoft & IDC Asia Pacific, 2018; Lange et al., 2018; Hemerling et al., 2018; Hartl, 2019). However, most of the previous research works merely mention the specific characterisation of digital culture (Hartl, 2019). previously noted studies remain silent on specific characteristics of digital culture in implementing digital transformation. Previous studies merely mentioned digital culture as a broad and generic concept rather than discussing it in-depth (Hartl & Hess, 2017). Despite the perceived necessity of digital culture in a digital transformation, most literature only briefly touches on the topic of culture in their studies, and most researchers remain silent on the cultural values that are crucial for digital transformation success.

Research by Capgemini, (2017) investigates the key elements of digital culture but is limited to a few key sectors in some European countries. A study by Goran et al., (2017) discussed characteristics of digital culture, however, narrowing it to only view from the point of view of McKinsey consulting firm. Extending from the previous research, Groussolles et al., (2018) prescribed cultural elements for a successful digital transformation but are limited to the industrial sector. Therefore, to address this gap, this research will study the characterisation of digital culture, particularly for SMEs. The research question is: RQ1 - *What are the key elements of digital culture that drive digital transformation for the SME?* The objective is to determine the key elements of digital culture that drive digital transformation for the SME and study the cultural values of a digital culture.

Gap in Value Creation From Digital Transformation for SME

Some research justifies that digitalisation influences overall business performance (Pradana et al., 2020). In contrast, some research states that digitalisation does not directly affect performance but instead emphasises the importance of flexible strategy and attention to the external environment to win the competition (Kanwal et al., 2019). The dominant view is that digital transformation has enabled businesses to create a competitive edge hence realising a new form of value creation (McDonald & Roswell-Jones, 2012; Cichosz et al., 2020). Researchers widely highlighted three core value creation areas of digital transformation which are: 1) financial, 2) operational benefits,

and 3) customer experiences (Capgemini, 2011; McDonald & Jones, 2012; Westerman et al., 2014; International Data Corp, 2017; Microsoft & IDC Asia Pacific, 2018).

A more systematic and theoretical analysis is required to investigate it in the context of SMEs. Previous studies by International Data Corp (2017) and Microsoft & IDC Asia Pacific (2018) assess the impact of digital transformation on SME performance. However, the studies disregarded the effect of culture on digital transformation. Moreover, the study by International Data Corp, (2017) does not indicate the degree of improvement in the financial performance but rather just a consensus view of the impact. International Data Corp, (2017) measured the benefits of digital transformation on customers for SMEs. However, the research does not indicate an improvement in customer satisfaction. A study by Robert J. Benson et al., (2004) investigates the implication of culture management on efficiency in implementing ICT. However, there is no empirical evidence from the study that justifies the impact of culture on overall business operational efficiency or productivity.

Since there is a gap in terms of understanding the value creation from digital transformation for SMEs, this research will study the relationship between digital culture elements and value creation through digital transformation. The statistical evidence is crucial to illustrate value creation from digital transformation driven by cultural transformation, which could break hesitation by the SMEs in going digital. Therefore, the research question is: RQ2 - *What is the relationship between digital culture elements and value creation through digital transformation for the SME?* The hypotheses that will be tested are:

H1. ***Digital Vision*** *has a positive association with 1) financial improvement, 2) productivity improvement, and 3) customer satisfaction of the SME.*

H2. ***Innovation Culture*** *has a positive association with 1) financial improvement, 2) productivity improvement, and 3) customer satisfaction of the SME.*

H3. ***Agile Way of Working*** *has a positive association with 1) financial improvement, 2) productivity improvement, and 3) customer satisfaction of the SME.*

H4. ***Customer-centricity*** *has a positive association with 1) financial improvement, 2) productivity improvement, and 3) customer satisfaction of the SME.*

H5. ***Collaboration*** *has a positive association with 1) financial improvement, 2) productivity improvement, and 3) customer satisfaction of the SME.*

H6. ***Digital Leadership*** *has a positive association with 1) financial improvement, 2) productivity improvement, and 3) customer satisfaction of the SME.*

Gap in Digital Culture Transformation Implementation

The digital culture transformation process remains ambiguous to most organisations (Lange et al., 2018; Tuukkanen et al., 2021). There is a lack of a consistent theoretical basis for understanding the concept of digital culture transformation. Various works of literature used the term culture 'change' in describing the act of altering the digital culture in a digital transformation (Hartl & Hess, 2017; Microsoft, 2017b; Hartl, 2019). However, the narratives in those research predominantly refer to culture 'transformation' since the impact, as described in their studies, extends beyond a typical culture change. A study by Lange et al., (2018) adopts the term culture transformation but does not define it explicitly in their research. Each organisation's transformation journey is unique; hence interpretations are highly contextualised.

The apparent gap from the previously mentioned research is that there is no integrated view on implementing digital culture transformation. Hence to address this gap, this research will adopt a relevant theoretical model as a basis to study this topic. The theoretical framework relevant for studying the adoption of digital transformation in this research has been discussed in detail in *Section 2.3*. The TPB will be adopted for this research due to its ability to predict actual behaviour, such as technology adoption (Gong & Yan, 2004; Shiau & George, 2014). Guided by this theoretical framework, this research will study how SMEs implement culture transformation to achieve an effective digital transformation. Therefore, the research question is: RQ3 – *How does SME implement culture transformation to achieve an effective digital transformation?* Several hypotheses were developed in accordance with the TPB framework, which are:

Attitudes towards the behaviour

H1. ***Attitude towards Digital Vision*** *has a positive relationship with behavioural intention to adopt digital transformation*

H2. ***Attitude towards Innovation Culture*** *has a positive relationship with behavioural intention to adopt digital transformation*

H3. ***Attitude towards Agile Way of Working*** *has a positive relationship with behavioural intention to adopt digital transformation*

H4. ***Attitude towards Customer-centricity*** *has a positive relationship with behavioural intention to adopt digital transformation*

H5. ***Attitude towards Collaboration*** *has a positive relationship with behavioural intention to adopt digital transformation*

H6. ***Attitude towards Digital Leadership*** *has a positive relationship with behavioural intention to adopt digital transformation*

Subjective Norm on the behaviour

H7. ***Subjective norm on Digital Vision*** *has a positive relationship with behavioural intention to adopt digital transformation*

H8. ***Subjective norm on Innovation Culture*** *has a positive relationship with behavioural intention to adopt digital transformation*

H9. ***Subjective norm on Agile Way of Working*** *has a positive relationship with behavioural intention to adopt digital transformation*

H10. ***Subjective norm on Customer-centricity*** *has a positive relationship with behavioural intention to adopt digital transformation*

H11. ***Subjective norm on Collaboration*** *has a positive relationship with behavioural intention to adopt digital transformation*

H12. ***Subjective norm on Digital Leadership*** *has a positive relationship with behavioural intention to adopt digital transformation*

Perceived Behavioral Control of the behaviour

H13. ***Standalone Unit for Digital Transformation*** *has a positive relationship with behavioural intention to adopt digital transformation*

H14. ***Continuous Learning*** *has a positive relationship with behavioural intention to adopt digital transformation*

H15. ***Digital Talent*** *has a positive relationship with behavioural intention to adopt digital transformation.*

2.8 CHAPTER SUMMARY

The concept of digital culture emerged throughout the year 1990s and early 2000, driven by the rise of digital transformation as the core to IR4.0, signifying the impact of culture on digital technologies adoption. Various works of literature on the topic of digital transformation have substantiated the significance of transforming the organisational culture towards digital culture to gain a competitive edge and sustainable performance.

Despite the importance of cultural transformation in a digital transformation journey, culture's complexity remains a barrier for organisations to implement it. Furthermore, empirical evidence from several research works indicated that the state of digital culture remains low, particularly among SMEs in Malaysia, which translates to a low adoption rate of digital transformation. Hence, to address these challenges, it is crucial to have better clarity on the concept of digital culture. Therefore, it is essential to understand; What cultural elements need to change in the context of digital culture? Why is digital culture transformation necessary? Moreover, how to implement an effective digital culture transformation?

Linking back to one of the research questions of this thesis (as presented in *Chapter 1*), which is: *what are the key elements of organisational culture that drive digital transformation for the SME?* By understanding what cultural elements that need to change? It helps organisations to have more clarity on the concept of digital culture. Doing so will lead to better focus in the transformation process. Based on the thematic analysis, five key elements of digital culture transformation recur across the literature; 1) Digital Vision, 2) Innovation Culture, 3) Agile Way of Working, 4) 3) Customer-Centricity, 5) Collaboration and 6) Digital Leadership. Each element was discussed in-depth, contextualised to SMEs, and several literature gaps were highlighted in *Section 2.7* of this chapter.

Nevertheless, Why is culture transformation necessary? The second research question of this thesis is: *What is the relationship between organisational culture and value creation through digital transformation for the SME?* The purpose is to analyse the relationship between culture transformation and value creation through digital transformation. The primary intention is to provide a theoretical background on the significance of digital culture in implementing a compelling digital transformation journey.

Based on the literature review, value creation from digital transformation is a combination of both tangible and intangible benefits with the ultimate aim of increasing stakeholders' satisfaction and maximising shareholders' wealth. Therefore, the ultimate goal of a digital transformation is to achieve a *triple win*. This refers to the company's ability to create values in the three core areas, which are: 1) financial performance, 2) operational benefits, and 3) improved customer experience. Each of the *triple wins*, i.e. winning the financial gains, winning in operational benefits, and winning in improving customer experience, were discussed in depth in *Section 2.5* of this chapter.

The third research question of this thesis is: *How does SME implement culture transformation to achieve an effective digital transformation?* The purpose of addressing this question is to formulate an actionable framework for SMEs towards digital transformation adoption. The relevant theoretical frameworks adopted for this research are the McKinsey 7-S model and the TPB. The construct of the theoretical framework for this research consists of two main parts; 1) identifying the elements of digital culture using the McKinsey 7-S framework, and 2) assessing and predicting the organisational behaviour to adopt digital transformation using the TPB. These theoretical frameworks will form the foundation for formulating a conceptual framework for digital culture transformation for the SMEs in Malaysia, which will be discussed in the following *Chapter 3 – Research Methodology.*

CHAPTER 3: RESEARCH METHODOLOGY

A conceptual framework is a structure derived based on the researcher's understanding to describe how the research problem would be explored (C. Grant & Osanloo, 2014). It linked relevant theories, empirical research, and concepts through an integrated view within the problem of the study. A conceptual framework can be in the form of a graphic or a narrative. It is organised in a logical structure to illustrate and explain the relationship between the different variables in the study. The importance of having a conceptual framework is that it assists the researcher in identifying and constructing the worldview on the phenomenon to be investigated (C. Grant & Osanloo, 2014).

In the context of the digital culture for the SME, a conceptual framework makes it easier for the researcher to specify and define the concepts in a more structured manner. In addition, Adom et al., (2018) suggested that a conceptual framework promotes the development of a theory that would be useful to practitioners in the field. It accentuates this research more academically and makes research findings more meaningful and generalisable. It is vital to create a firm structure for the study, especially in areas with insufficient existing theories (e.g., digital culture). From a statistical standpoint, a conceptual framework provides clarity in analysing and authenticating the correlation or significance of the variables.

3.1 CONCEPTUAL FRAMEWORK

In this research, there will be two conceptual frameworks. The first framework is mainly to address the RQ1 and RQ2 while the second framework is to address the RQ3 as elaborated in Section 1.5 of Chapter 1. The alignment of the theoretical frameworks, conceptual frameworks and research questions is shown in Table 3.1 below.

Table 3. 1: Alignment of Theoretial Frameworks, Conceptual Frameworks, and Research Questions

Theoretical Frameworks	Conceptual Frameworks	Research Questions
McKinsey 7-S framework (Peters & Waterman, 1982)	Conceptual Framework for Refining the Digital Culture using McKinsey 7-S – refer *Figure 3,1*	**RQ1:** What are the key elements of digital culture that drive

		digital transformation for the SME? **RQ2:** What is the relationship between digital culture elements and value creation through digital transformation for the SME?
The Theory of Planned Behaviour (TPB) introduced by Ajzen, (1991)	Conceptual Framework for Digital Culture Transformation Implementation – refer *Figure 3,2*	**RQ3:** How does SME implement culture transformation to achieve an effective digital transformation?

The following sub-sections will elaborate further on each of the conceptual frameworks. The author of this thesis will adopt relevant models in existing theories and modify them to suit the research context. Ravitch & Carl, (2016) suggest that the existing theoretical framework facilitates researchers in situating and contextualising well-developed theories in their studies. An explanation of how these theoretical frameworks are integrated and work together in studying digital culture transformation for SMEs also will be presented.

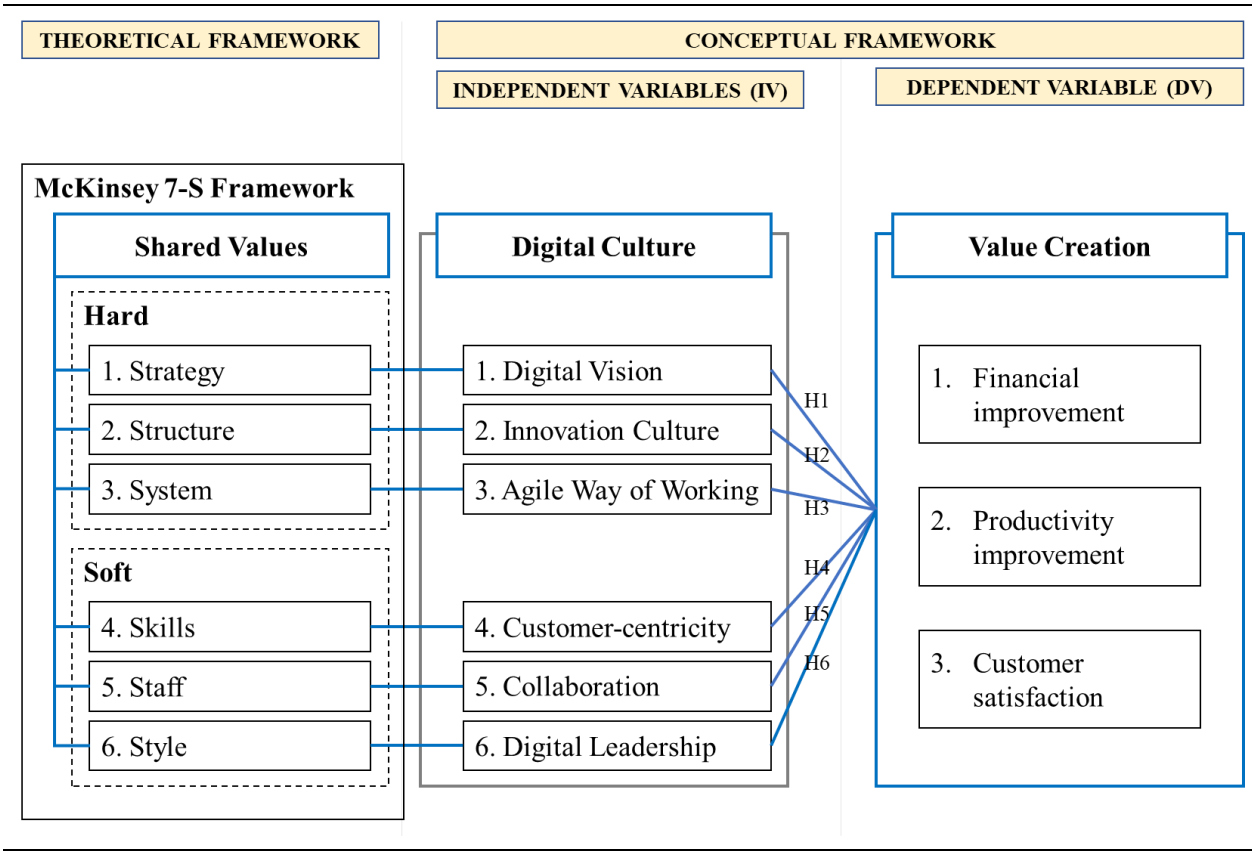
3.1.1 CONCEPTUAL FRAMEWORK FOR REFINING THE DIGITAL CULTURE USING MCKINSEY 7-S

The McKinsey 7-S framework introduced by Peters & Waterman, (1982) will be adopted as a theoretical basis for refining the concept of digital culture. According to the McKinsey 7-S framework, characterising and aligning critical organisational aspects is vital to achieving organisational effectiveness. Although the framework was introduced four decades ago, it remains relevant in understanding the complexity of organisations in modern business management studies. However, the framework will need to be adjusted to suit the current context. Therefore, this research will adopt its fundamental principle and redefine the 7-S to suit elements of organisational culture that drive towards an effective digital transformation.

Fundamentally, the McKinsey 7-S framework demonstrates an organisation's effectiveness by interacting with the seven key elements. Therefore, it is usually adopted as an organisational tool

for assessing a company's well-being and future success. It is a framework for organisational effectiveness that postulates seven internal factors that an organisation must align and strengthen to succeed. The abbreviation 7-S (representing each of the variables) stands for; 1) Strategy, 2) Structure, 3) System, 4) Skill, 5) Staff, 6) Style, and 7) Shared Values. In addition, the framework focuses on networking these elements, implying that there must be a domino effect between changes to one element and another to maintain an effective balance. Figure 3.1 below illustrates the conceptual framework for refining the digital culture using the McKinsey 7-S framework in this research.

Figure 3. 1: Conceptual Frameworks for Refining the Digital Culture using McKinsey 7-S



The 7-S elements collectively shape the organisational culture. These elements need to be analysed to help the organisation identify key success factors in implementing a new strategy. Each 'S' in the McKinsey 7-S framework is a significant area of scientific research in itself. However, this research will not discuss each of the 7-S elements in detail as it will deviate from the main focus of this thesis. Instead, this research will briefly view the 7-S elements and focus more on distilling

the elements of culture in a digital transformation following the 7-S dimensions. The process of identifying the elements has been made in conjunction with relevant research works discussed in academia, particularly in the organisational transformation field of study and digital transformation. Subsequently, the elements will be validated with findings from the interview (involving SMEs with a matured digital culture), which will be further elaborated in the research findings later. The following sub-sections will elaborate on each element of the McKinsey 7-S framework and its relation to digital culture.

3.1.1.1 'HARD' AND 'SOFT' ELEMENTS OF THE DIGITAL CULTURE

The McKinsey 7-S framework comprises a mixture of seven interlinked elements and is categorised as 'hardware' and 'software'. Hence, the conceptual model for this research will segregate the 7-S elements into two categories, namely 'hard' and 'soft'. The 'hard' elements are Strategy, Structure, and System. These are tangible elements of an organisation that is easily recognised and have clear influences on management. Usually, the 'hard' elements are documented in corporate plans, organisational charts, and operating procedures. While the remaining elements, which are Skill, Staff, Style, and Shared Values, are categorised as the 'soft' elements. These elements are difficult to identify as they are intangible. The following sub-sections will elaborate in detail on each of the McKinsey 7-S elements and how it relate to the context of the digital culture.

3.1.1.2 SHARED VALUES REPRESENT THE DIGITAL CULTURE

The core element in the McKinsey 7-S framework is *Shared Values*. It refers to the overarching purposes of an organisation that are closely related to the culture that prevails within a company. The Shared Values weave together the organisation's members and act as a central foundation for organisational culture (Kennedy & Deal, 1982). According to Schein, (2010), managing the culture is vital as it determines the individual conduct and values within the organisation. In a digital transformation, Shared Values represent the digital culture, which also acts as the core variable in the conceptual framework for this research. This epicentre element drives the implementation and success of the digital transformation journey. Placing digital culture in the middle makes it clear that this variable is crucial to developing all the other variables in the digital culture transformation framework.

The fundamental idea from the McKinsey 7-S framework is that if the shared values changes, all the other interlinked elements also will be directly affected (Peters & Waterman, 1982). A similar situation happens in a digital transformation by adopting the same principle. As highlighted previously, the digital culture propels the success of a digital transformation. However, it is notable that culture is a complex phenomenon. The McKinsey 7-S framework will ease in identifying the critical elements of digital culture through a more structured approach to characterising the concept. Understanding the interlinked elements of the digital culture is crucial as it may affect other facets.

3.1.1.3 STRATEGY THAT IS DRIVEN BY DIGITAL VISION

Strategy is one of the 'hard' elements of the McKinsey 7-S framework. It refers to the positioning of how an organisation responds to changes in the external environment to achieve competitive advantages over its competitors (Peters & Waterman, 1982; Kaplan & Norton, 2004). It is a tool used to create differentiation for an organisation to reach a competitive market position. Strategy is unfixed as it changes per what the organisation wants to develop. For example, as the business landscape shifted from traditional towards a more technology-driven, company needs to have a vision of transforming their organisation for a digital world. Westerman et al., (2014) suggest that the process starts with a transformative vision of how the organisation will be different in the digital world and then engage the employees in materialising the vision

Digital Vision is a foundation that guides the organisation (Westerman et al., 2014; Hyvönen, 2018), which establishes its future positioning for digital transformation efforts (Holotiuk & Beimborn, 2017). As digital transformation typically involves radical changes, Digital Vision helps to drive the change by breaking the traditional silos across the organisation (Hyvönen, 2018). Hyvönen, (2018) study has shown that building a Digital Vision is a critical strategic decision for digital transformation. The formulation of a Digital Vision must be a collaborative effort between the leadership and millennials that jointly build a vision for their organisation's digital future (World Economic Forum, 2016) and grounded it into a deep understanding of customer's needs and technological possibilities (Heavin & Power, 2018).

In the SME context, Priyono et al., (2020) suggest that SMEs accelerating their transition towards a more digitalised company must have a long-term digital vision and strategy. Furthermore, having a clear Digital Vision allows SMEs to compete against large companies in the new digital

economy. In addition, a study by Ambiose, (2000) confirms a positive and significant correlation between vision and performance in a traditional business for the SME. Therefore, following this established study, it is suggested that SMEs need to have a Digital Vision as their core strategic driver in implementing a successful digital transformation. This radical and transformative digital vision is crucial as it will stretch the organisation's capability towards achieving greater business performance.

3.1.1.4 STRUCTURE THAT EMBRACES INNOVATION CULTURE

Structure refers to the mechanisms by which people are segregated according to respective specialisation, authority is distributed, and reporting relations are defined in an organisation (Kaplan & Norton, 2004). Typically it is illustrated in an organisational chart. It is part of the 'hard' elements in the McKinsey 7-S framework. An organisational structure sets the boundaries of how it operates, how internal units communicate, collaborate, and induce strategic alignment. Thus, organisational structure, in some ways, acts as a framework for the culture to be implemented. In a digital transformation, organisations need to embrace a structure that embraces innovation. Innovation commonly refers to changes and improvement by creating and implementing new processes or products, which result in greater efficacy and quality (Mulgan & Albury, 2003; Tohidi & Jabbari, 2012).

Innovation culture is critical for a successful digital transformation. In the MIT Sloan Management Review and Deloitte global study, 90% of digitally matured organisations cited that improving innovation and decision-making are their digital strategy imperatives (Kane et al., 2015). Prior research captured an extensive view from various companies worldwide of various sizes. Although the research does not discuss SMEs specifically, it could also be assumed to be relevant to them. A digitally matured organisation fosters an innovation culture by having a strong propensity that encourages risk-taking, supports collaboration and creativity (Ibidunni et al., 2013; Kane et al., 2015; Mierke & Williamson, 2017).

Several studies were conducted to provide some validation of innovation culture linked to the performance of SMEs (Abouzeedan, 2011; Hanifah et al., 2017; Aksoy, 2017). According to Hanifah et al., (2017), innovation culture directly influences the employees' behaviour, leading towards more robust innovation performance. Notably, innovation culture is the key to SMEs' long-term competitiveness as they may get a higher competitive advantage (Aspplund, 2003;

Aksoy, 2017), more robust innovative performance (Hanifah et al., 2017), and better market performance (Aksoy, 2017). In essence, SMEs must operate with a structure that embraces innovation culture to achieve a thriving digital transformation. Building upon the previous studies, this research will test the relationship between innovation culture and to impact on SMEs' business performance.

3.1.1.5 SYSTEMS THAT ENABLE AGILE WAY OF WORKING

Peters & Waterman, (1982) define *Systems* as the process of how organisations execute their daily operations, designed to create maximum effectiveness. It is part of the 'hard' elements in the McKinsey 7-S framework that is usually documented in operating manuals or procedures. The system acts as an instrument of decision-making and creates focus, cohesion, and efficiency towards executing the organisational strategy. In this instance, organisations need to adopt new ways of working supported by a clear business rationale for embracing new technologies to thrive in a digital transformation. Previous studies broadly proposed that embracing agile is a vital characteristic of the new ways of working in a digital transformation.

An agile organisation is a network of teams within a people-centred culture operating in fast learning and decision-making, aiming at co-creating values for all stakeholders (Aghina et al., 2017). Recent studies have indicated that an agile way of working is among the key elements to accelerating digital transformation (Westerman et al., 2014; Heavin & Power, 2018; Carr et al., 2019). Priyono et al., (2020) revealed that implementing an agile way of working is critical to SMEs' survival in the new digital economy era. The key characteristics of an agile way of working are the organisation that encourages technology experimentation, high tolerance towards failure, continuous learning, simplicity in execution, and a collaborative ecosystem.

By being agile, organisations could reduce risk exposure since agile organisations operated on a rapid iteration process and institutionalised feedback loops (Burchardt & Maisch, 2019). New product innovation will be tested on a small scale with customers, and feedback will be gathered. Previous research works by Ruostela et al., (2015) and Gerards et al., (2018) examined the correlation of new ways of working to organisational performance. However, their research does not fit with the context of this research. Therefore, expanding from the previous studies, this research will test the relationship between the Agile Way of Working and the SME's business performance in a digital transformation.

3.1.1.6 SKILL FOUNDED BY CUSTOMER-CENTRICITY

Skill element is one of the 'soft' elements of the McKinsey 7-S framework. It refers to knowledge of the staff within the organisation related to the notion of its core capabilities and competencies that enables its employees to achieve its objectives. In addition, it refers to the distinctive competencies of an organisation that differentiates it from its competitors. Competing in the increasingly digital and connected world requires organisations to shift to be more customer-centric, collaborative, and agile. Several research works revealed that among crucial success factors to winning customers in this era is to be responsive to customers' needs and changing market conditions (Cooper, 2005; Capgemini, 2011).

Several research works suggest that customer-centricity is among the critical elements of a thriving digital culture (Peter et al., 2020; Steven, 2021). The enablement of a customer-centricity organisation has to be driven by the leadership (Lamberti, 2013; Peter et al., 2020) and supported by a combination of technologies adoption, i.e. e-commerce, digital marketing, cloud technology, and data analytics (Peter et al., 2020). Regardless of the organisation's size, the same situation applies broadly to all, including SMEs. Therefore, SME employee skills development must focus on customer-centric as its foundation, especially for organisations undergoing digital transformation.

Various research works on customer-centricity emphasise the value impact on the organisation. Based on NTT Limited research, companies that focused on improving their customer experience in a digital transformation benefitted from increased revenue, uplifted customer loyalty, and higher cost-saving (NTT Ltd., 2020). Furthermore, based on Deloitte's research, customer-centric companies are 60% more profitable than companies that do not focus on the customer (Schmidt et al., 2017). The previous consultant's reports provide significant insight from the industry's perspective but lack an academic argument. Thus, building upon the previous studies, this research will explore this variable from an academic standpoint and test the relationship between customer-centricity and value creation.

3.1.1.7 STAFF WORKS THROUGH COLLABORATION

Staff is another 'soft' element of the McKinsey 7-S framework. There are various interpretations of the term 'staff'. However, the most relevant definition in the context of the McKinsey 7-S

framework is that the staff element does not refer to a person but rather the demographic characteristics of the humans that act in an organisation. In this context, the staff represents the employees' competencies, job description, educational background, unique experiences, behaviour and morale, which are, to some extent, not apparent in an organisation. It is typically related to the Human Resources function, which involves talent management, capability development, and a reward system. Transforming culture in a digital transformation requires a new way of working, driven by the adoption of digital technologies. People from different business functions (i.e. marketing, sales operations and ICT) will work together to explore digital innovation for business growth in a digital transformation. This working environment promotes collaboration, greater transparency, and interaction, thus ensuring a successful digital culture transformation (Hemerling et al., 2018; Lange et al., 2018).

In addition, Lange et al., (2018) also highlighted that eliminating a silo working mindset by fostering a partnership and collaboration are prerequisites for a successful digital transformation. A collaborative way of working is a crucial differentiator to any organisation. According to Kane et al., (2015), more than 80% of digitally matured organisations indicated that their working environment is more collaborative than their competitors. The ways of working in an organisation will determine how the staff behaviour responds. Therefore, to develop a thriving digital culture, the organisation needs to shape the staff by working through collaboration. This research will assess the relationship between collaboration and its impact on SMEs' value creation to authenticate this claim.

3.1.1.8 STYLE THAT IS DRIVEN BY DIGITAL LEADERSHIP

In the McKinsey 7-S framework, the *Style* element refers to patterns of behaviour displayed by the top management. It is more about what the managers focus on and how they act (Peters & Waterman, 1982). It is part of the 'soft' elements in the McKinsey 7-S framework that is closely linked to leadership. Previous studies acknowledged that leadership is crucial in shaping the organisational culture (Schein, 2010; Belias & Koustelios, 2014). In digital transformation, various studies substantiated the significance of digital leadership in driving the transformation agenda (Capgemini, 2012; Fitzgerald et al., 2014; Schwertner, 2017; Foerster-Metz et al., 2018; Sainger, 2018).

Leadership styles vary depending on internal and external dimensions of the environment. The emergence of the IR 4.0 forced leaders to adapt to changes in the business landscape and undergo digital transformation. In a digital transformation, leaders must adapt to change effectively and acclimate their leadership styles accordingly. Notably, no one-size-fits-all leadership style can be considered the best. Nevertheless, Sow & Aborbie, (2018) research highlighted that transformational leadership is the most relevant style for digital leadership. Transformational leaders have the charisma and inspiration to successfully implement radical changes with relatively strong support from their workforce (Thornhill et al., 2000; Majeed et al., 2010).

However, having fixated leadership styles is futile for any organisation undergoing digital transformation. Therefore, flexible, adaptive, collaborative and innovative leadership styles are also paramount in digital leadership. By exhibiting appropriate digital leadership styles, leaders create a positive working environment and cultivate digital culture. Furthermore, previous studies highlighted that leadership styles positively impact an organisation's profit and performance. For example, a study by Goleman (2000) revealed that large enterprises successfully gained a 30% improvement in their profit by having suitable leadership styles. Therefore, extending from the previous studies, this research will investigate the relationship between digital leadership and its impact on value creation.

3.1.1.9 LINKING DIGITAL CULTURE TO VALUE CREATION

As previously described, seven interlinked elements of digital culture that have been identified are associated with the McKinsey 7-S elements. The following table summarises the elements to show how the elements are related to the McKinsey 7-S framework.

Table 3. 2: Linking the McKinsey 7-S with Digital Culture

No	McKinsey 7-S elements	Digital Culture elements
1	Shared Values	Digital Culture
2	Strategy	Digital Vision
3	Structure	Innovation Culture
4	System	Agile way of working
5	Skill	Customer-centricity

Table 3. 2: Linking the McKinsey 7-S with Digital Culture

No	McKinsey 7-S elements	Digital Culture elements
6	Staff	Collaboration
7	Style	Digital Leadership

In the McKinsey 7-S framework, Strategy, Structure, System, Skill, Staff and Style are interlinked with Shared Values to achieve organisational effectiveness. Similar to the principle in the McKinsey 7-S; Digital Vision, Innovation Culture, Agile Way of Working, Customer-centricity, Collaboration, and Digital Leadership must align with the Digital Culture to achieve an effective digital transformation. To validate whether these digital culture elements truly affect the performance of an organisation, this research will assess the relationship of the digital culture elements with value creation. The underlying research question is: *What is the relationship between digital culture elements and value creation through digital transformation for the SME?*. By understanding the relationship between the elements of organisational culture in SMEs, this research will uncover how digital transformation through culture change will lead to value creation.

Researchers widely highlighted three thematic areas of value creation from digital transformation (Capgemini, 2011; McDonald & Jones, 2012; Westerman et al., 2014; International Data Corp, 2017; Microsoft & IDC Asia Pacific, 2018). The three core areas are 1) financial improvement, 2) productivity improvement, and 3) enhance customer experiences, which can be classified as the *triple win* (as discussed in *Section 2.5*). The digital culture elements, as shown in *Table 3.2* above, are linked to the theoretical framework of McKinsey 7-S. These digital culture elements are mainly the independent variables in this conceptual framework. The SME business performance, or specifically the three value creation areas from the digital transformation, are mainly the dependent variables for this conceptual framework. This research will test the relationship between the elements of Digital Culture with the SME's business performance, particularly in achieving a *triple win* using the following Hypothesis (H) :

H1. ***Digital Vision*** *has a positive association with 1) financial improvement, 2) productivity improvement, and 3) customer satisfaction of the SME.*

H2. ***Innovation Culture*** *has a positive association with 1) financial improvement, 2) productivity improvement, and 3) customer satisfaction of the SME.*

H3. ***Agile Way of Working*** *has a positive association with 1) financial improvement, 2) productivity improvement, and 3) customer satisfaction of the SME.*

H4. ***Customer-centricity*** *has a positive association with 1) financial improvement, 2) productivity improvement, and 3) customer satisfaction of the SME.*

H5. ***Collaboration*** *has a positive association with 1) financial improvement, 2) productivity improvement, and 3) customer satisfaction of the SME.*

H6. ***Digital Leadership*** *has a positive association with 1) financial improvement, 2) productivity improvement, and 3) customer satisfaction of the SME.*

This validation aims to create a motivational force for SMEs in adopting digital transformation, mainly to express how the value of valence will influence their approach to going digital. Furthermore, by understanding the relationship between the elements of organisational culture in the SME, this research will uncover how digital transformation through culture change will lead to value creation. Consequently, it will encourage them to prioritise digital culture transformation in their digital transformation to achieve an effective transformation agenda.

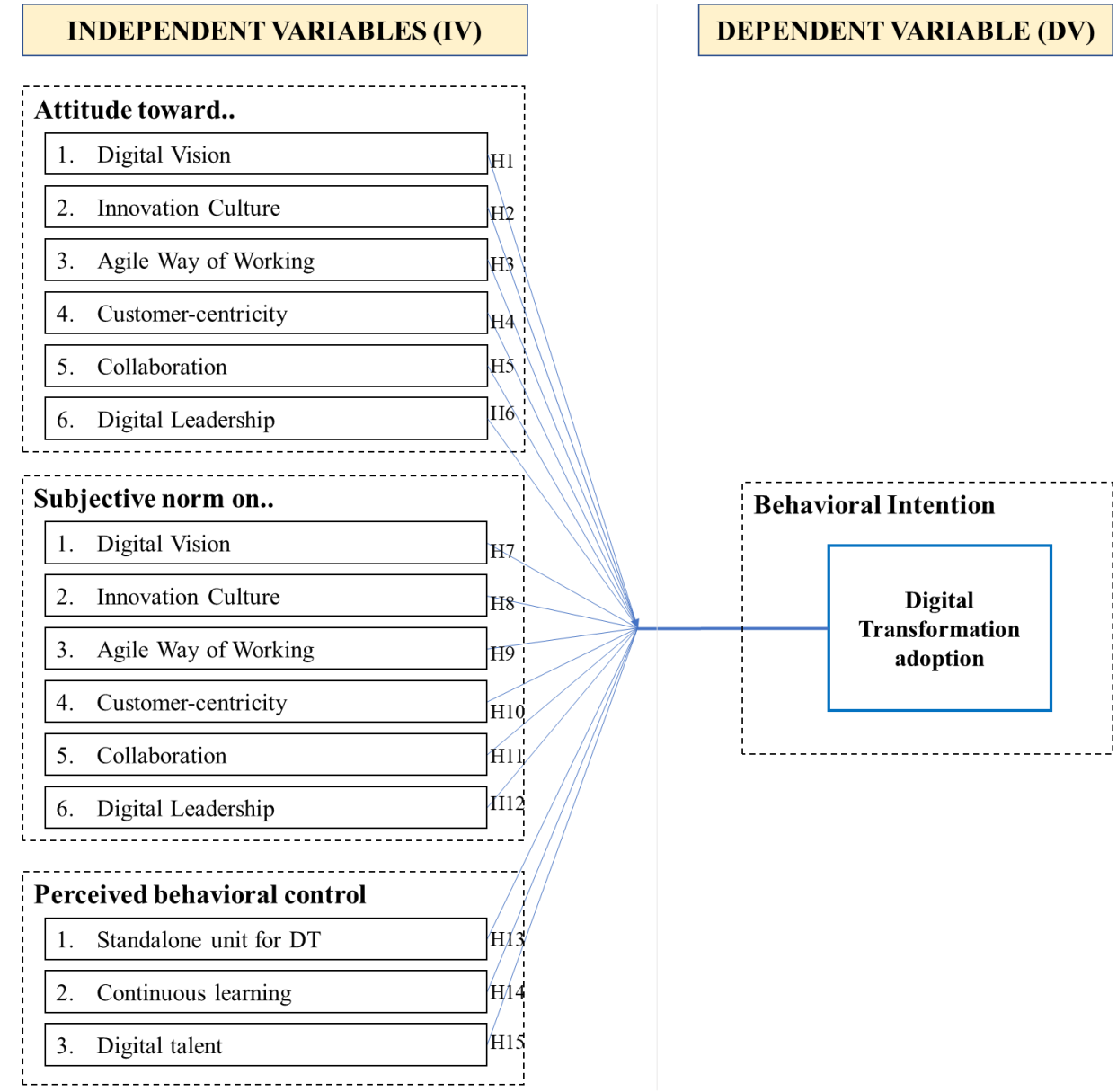
3.1.2 CONCEPTUAL FRAMEWORK FOR DIGITAL CULTURE TRANSFORMATION IMPLEMENTATION USING TPB

In this research, the TPB will be the theoretical framework to study the implementation of digital culture transformation. TPB will be used as a guide to investigating the adoption of digital transformation for SMEs in this research. The conceptual framework for this research suggests that organisational culture within SMEs, particularly their digital culture, promotes the adoption of digital transformation. This conceptual framework will act as predictive behavioural modelling for this research.

Fundamentally, there are three primary constructs or variables in the TPB, namely; 1) *attitude*, 2) *subjective norm*, and 3) *perceived behavioural control*. TPB postulates that these independent determinants of intention are the best predictors for forming a behavioural intention. TPB is suitable for this research because the framework covers three core dimensions that influence organisational behaviour towards digital transformation adoption. These dimensions were deemed to be highly related to the context of digital culture. In addition, it is suitable for this research because it gives insight into individual or society's behavioural intention in technology adoption. The three constructs of TPB, as mentioned above, are the independent variables. While the dependent variable will be the behavioural intention.

For the conceptual framework, the author will adopt the variables as mentioned in *Section 2.6* and modify them to suit the theoretical framework and research context. The identification of the variables is guided by findings from the literature review. The following sub-sections will describe each of the primary constructs, the variables, and their relation to the digital culture elements and suggest the hypothesis that will be used to test the correlation with the dependent variable. The diagrammatic representation of the main variables of this study is shown in *Figure 3.2* below. It illustrated the variables involved in assessing the organisational behaviour in adopting digital transformation using the TPB.

Figure 3. 2: Conceptual Framework for Digital Culture Transformation Implementation



3.1.2.1 ATTITUDE TOWARDS THE BEHAVIOUR

Attitude refers to the subjective probability that one behaviour will lead to a particular outcome evaluation and actualisation. Essentially, it reflects the degree to which an individual positively or negatively values the performance of the behaviour. In this research, the Attitude construct refers to the individual perception of the behaviour related to each digital culture element. It reflects how an individual believes the elements are vital for their digital transformation, which is essential to cultivating a digital culture in their organisation.

Table 3.3 below summarises the definition of the key variables related to the digital culture elements that are associated with the Attitude construct;

Table 3. 3: Variables Associated with Attitude

No	Variables	Description of the variable
1	Attitude towards Digital Vision	It is a statement describing the company's direction of its digital transformation journey, expressing its strategic intent, its purpose of digitalisation, and aligning with its business goals and strategy. This variable is aligned to the literature review as described in *Section 2.4.1 (Chapter 2 – Literature Review)*
2	Attitude towards Innovation Culture	Refers to an organisational structure that nurtures unorthodox thinking by actively encouraging creativity and creating novelty solutions for new processes or products, resulting in greater efficacy and quality. This variable is aligned to the literature review as described in *Section 2.4.2 (Chapter 2 – Literature Review)*
3	Attitude towards Agile way of working	Refers to a style of working enabled by the organisational system that empowers team members and encourages collaboration to adapt and pivot faster than competitors towards achieving a competitive advantage. This variable is aligned to the literature review as described in *Section 2.4.3 (Chapter 2 – Literature Review)*
4	Attitude towards Customer-centricity	Refers to employees skill in putting customers at the centre of decisions by viewing from the customer's lens, which aims at providing and improving products or services that create a positive customer experience. This variable is aligned to the literature review as described in *Section 2.4.4 (Chapter 2 – Literature Review)*
5	Attitude towards Collaboration	It is among the key features of an agile way of working that emphasises on collaborative working mentality whereby

		individuals work together for a shared purpose to achieve business goals. This variable is aligned to the literature review as described in *Section 2.4.5 (Chapter 2 – Literature Review)*
6	Attitude towards Digital Leadership	Refers to a leadership style that is transformative, innovative, flexible, digital-savvy and agile, that drives the digital change in an organisation towards building a shared theory of success for digital transformation. This variable is aligned to the literature review as described in *Section 2.4.6 (Chapter 2 – Literature Review)*

For example, SMEs believe it is essential to have *Digital Vision* as a tool that binds the group's commitment to going digital. They also think *Innovation Culture* is the critical operating system that unlocks their organisational capability to produce innovative products for the market. They also think that *Working in an Agile* way enables them to develop the products through experimentation and continuous reiteration while reducing the risk of poor product-market fit. The development of the products is centred on their *Customer-centricity Mindset*, which aims at solving their customer's pain points through innovative products or solutions. To achieve effective implementation of the digital transformation, they believe *Collaboration* is crucial as it allows cohesiveness in delivering the solutions to customers. The SMEs also believe that enablement of the digital culture has to be driven by *Digital Leadership*.

Therefore, it is suggested that the digital culture elements directly influence their behavioural intention in accelerating their digital transformation adoption. Hence, to validate this claim, this research will test the relationship between the digital culture elements and the behavioural intention towards digital transformation using the Hypothesis (H) as below:

H1. ***Attitude towards Digital Vision*** *has a positive relationship with behavioural intention to adopt digital transformation*

H2. ***Attitude towards Innovation Culture*** *has a positive relationship with behavioural intention to adopt digital transformation*

H3. ***Attitude towards Agile Way of Working*** *has a positive relationship with behavioural intention to adopt digital transformation*

H4. ***Attitude towards Customer-centricity*** *has a positive relationship with behavioural intention to adopt digital transformation*

H5. ***Attitude towards Collaboration*** *has a positive relationship with behavioural intention to adopt digital transformation*

H6. ***Attitude towards Digital Leadership*** *has a positive relationship with behavioural intention to adopt digital transformation*

3.1.2.2 SUBJECTIVE NORM

The second construct of TPB is the *Subjective Norm*, which refers to the social pressure an organisation feel by performing or not performing a particular behaviour (Ajzen, 2006). It is verified by the aggregation of normative beliefs within a group of people. In this research this is referring to how SMEs (in an organisational or societal context) exhibit a positive influence on intention in accelerating their digital transformation. It is determined by measuring how they believe that the digital culture elements are vital for their digital transformation as an organisation. In the TPB framework, the Subjective Norm will be the independent variables. The digital culture elements as explained in the literature review (refer *Section 2.4*) will be linked to the Subjective Norm.

The digital culture variables associated with *Subjective Norm* will have a slightly different narrative than variables associated with *Attitude*. However, they essentially have the same fundamental meaning and align with the digital culture elements. This will ensure that the evaluative factors can be clearly distinguished from an individual versus an organisational perspective. *Table 3.4* below summarises the definition of the key variables related to the digital culture elements that are associated with the *Subjective Norm* construct;

Table 3. 4: Variables Associated with Subjective Norm

No	Variables	Description of the variable
1	Subjective norm on Digital Vision	It refers to how SMEs describe their organisation in terms of having clarity, transparency and adequate process to

		communicate their *Digital Vision*. This variable is aligned with the literature review as described in *Section 2.4.1 (Chapter 2 – Literature Review)*.
2	Subjective norm on Innovation Culture	It refers to how they describe the level of *Innovation Culture* in their organisation, one of the critical digital culture elements. It refers to their perception of how their organisation cultivates a culture that emphasises creating novelty solutions to achieve greater efficacy and quality. This variable is aligned to the literature review as described in *Section 2.4.2 (Chapter 2 – Literature Review)*
3	Subjective norm on Agile Way of Working	This variable is related to the *Agile Way of Working* in the digital culture elements. It describes how their organisation adopt the *Agile Way of Working* in implementing digital transformation. This variable is aligned to the literature review as described in *Section 2.4.3 (Chapter 2 – Literature Review)*
4	Subjective norm on Customer-centricity	This variable is related to the *Customer-centricity* in the digital culture elements. It reflects how they think their organisation values the importance of having a customer-first mindset and whether they are performing as a customer-focused organisation. This variable is aligned to the literature review as described in *Section 2.4.4 (Chapter 2 – Literature Review)*
5	Subjective norm on Collaboration	It reflects their organisational style of working that emphasises collaborative culture while progressing in their digital transformation journey. This variable is aligned to the literature review as described in *Section 2.4.5 (Chapter 2 – Literature Review)*
6	Subjective norm on Digital Leadership	This variable is related to the *Digital Leadership* in the digital culture elements. It refers to how SMEs describe their leaders are playing the central role in leading the digital transformation

		agenda, a critical driving factor at the organisational level. This variable is aligned to the literature review as described in *Section 2.4.6 (Chapter 2 – Literature Review)*

For instance, SMEs describe that their organisations have communicated a very clear *Digital Vision* in their digital transformation, forcing them to accelerate technology adoption. In addition, their organisations embrace *Innovation Culture*, thus pushing them to redefine their work process. Their organisations also valued the importance of the *Agile Way of Working* by empowering employees to lead digitalisation initiatives. As a result, it forces them to be accountable for their digitalisation effort. The SMEs also describe that their organisation has a *customer-first mindset*, which compels them to embark on digital transformation focusing on customer needs. Essentially, the company's digital transformation effort is driven by its *Digital Leadership*, thus creating a strong propensity towards digitalisation.

These subjective norms undeniably shape the SMEs' intention towards accelerating their digital transformation adoption. Hence, it is suggested that the subjective norms related to the digital culture directly affect their behavioural intention in accelerating their digital adoption. As such, to validate this claim, this research will test the relationship between the subjective norms and the behavioural intention towards the adoption of digital transformation using the Hypothesis (H) as below:

H7. ***Subjective norm on Digital Vision*** *has a positive relationship with behavioural intention to adopt digital transformation*

H8. ***Subjective norm on Innovation Culture*** *has a positive relationship with behavioural intention to adopt digital transformation*

H9. ***Subjective norm on Agile Way of Working*** *has a positive relationship with behavioural intention to adopt digital transformation*

H10. ***Subjective norm on Customer-centricity*** *has a positive relationship with behavioural intention to adopt digital transformation*

H11. ***Subjective norm on Collaboration*** *has a positive relationship with behavioural intention to adopt digital transformation*

H12. ***Subjective norm on Digital Leadership*** *has a positive relationship with behavioural intention to adopt digital transformation*

3.1.2.3 PERCEIVED BEHAVIOURAL CONTROL

The third construct of TPB is *Perceived Behavioural Control*. This refers to the SME's belief that they have control over implementing the digital transformation. *Perceived Behavioural Control* has a direct and indirect influence on the actual behaviour. Its direct impact refers to the ability to have adequate resources or control to display the behaviour or act. For example, a large enterprise may have a sufficient budget to engage with an external consultant to assist them in implementing digital transformation. This reflects that they have substantial behavioural control over their action. As a result, the likelihood for the company to implement digital transformation is high, irrespective of its behavioural intention.

In contrast, the indirect impact of *Perceived Behavioural Control* refers to its influence through motivational effects on behavioural intention. In this research, the focus is more on understanding how *Perceived Behavioural Control* affects behavioural intention (through indirect impact) as it is more suitable in the SME context. The rationale is that SMEs are constrained with limited resources to implement digital transformation. Nevertheless, some of them can still embark on a digital transformation journey, mainly driven by their motivational force and strong belief in the importance of going digital. Therefore, this research will clarify how they overcome the challenges due to resource constraints through digital culture cultivation.

Table 3.5 below summarises the definition of the key variables related to the digital culture elements that are associated with the *Perceived Behavioural Control* construct;

Table 3. 5: Variables Associated with Perceived Behavioural Control

No	Variables	Description of the variable
1	Standalone Unit for Digital Transformation	It describes whether the SMEs can establish a dedicated group of people to focus on implementing the digital transformation. Although SMEs are technically small, it is still possible for them to allocate a few employees to focus on their business digitalisation to ensure effective implementation of the digital transformation agenda. This variable is aligned to the literature

		review as described in *Section 2.6.1 (Chapter 2 – Literature Review)*
2	Continuous Learning	It refers to the SME's commitment towards consistent action in upskilling their employees in digital transformation. The importance of doing this is to continuously improve their business efficiency in line with the pace of technological advancement. This variable is aligned to the literature review as described in *Section 2.6.2 (Chapter 2 – Literature Review)*
3	Digital Talent	It describes whether SMEs continuously develop digital talent within their organisation. Digital talent refers to employees who are competent with digital skills demanded by the industry. These are the people that will drive the implementation of digital technology in their business. This variable is aligned to the literature review as described in *Section 2.6.3 (Chapter 2 – Literature Review)*

For instance, due to the lack of financial resources to engage external consultants, the SMEs would probably set up a *standalone unit for digital transformation*. This internally established unit will focus mainly on digitalisation efforts, creating a solid commitment to achieving the transformation goals. The SMEs also have a strong commitment to *continuous learning*, thus enabling employees to upskill and increase their competency in implementing relevant digital technology in their business. Despite the lack of financial resources, the SMEs could take advantage of various free upskilling programs offered by various agencies (e.g. MDEC, SME Corp, and private agencies). The SMEs also continuously develop *digital talent*, whether through a homegrown approach or hiring from external sources. Therefore, it is suggested that the perceived behavioural control influences their behavioural intention in accelerating their digital transformation adoption. To validate this claim, this research will test the relationship between the *Perceived Behavioural Control* related to digital culture and the behavioural intention towards digital transformation using the Hypothesis (H) as below:

H13. ***Standalone Unit for Digital Transformation*** *has a positive relationship with behavioural intention to adopt digital transformation*

H14. ***Continuous Learning*** *has a positive relationship with behavioural intention to adopt digital transformation*

H15. ***Digital Talent*** *has a positive relationship with behavioural intention to adopt digital transformation*

3.1.2.4 BEHAVIOURAL INTENTION

Behavioural Intention refers to an indication of a person's readiness to perform a particular action. It is considered an immediate antecedent of behaviour and has a robust ability to predict actual behaviour. As applied in this research, *Behavioural Intention* refers to the SME's *intention to adopt Digital Transformation*. It is the primary dependent variable that will be tested with all of the digital culture elements in accordance with the TPB framework. It will be measured by evaluating the SME's willingness to adopt technology (such as e-commerce, e.g. Shopee or Lazada, or process automation system) to improve their business performance and boost their digital marketing. Regression analysis will be conducted to determine the relationship between *Behavioural Intention* as a dependent variable with all three primary constructs of the TPB, which are *Attitude*, *Subjective Norm* and *Perceived Behavioral Control*.

3.2 RESEARCH PHILOSOPHY

According to Saunders et al., (2009), there are four major research philosophies in a business and management study: 1) positivism, 2) realism, 3) interpretivism, and 4) pragmatism. Positivism and realism are not appropriate for this research because the author is interested in a deeper understanding of the elements of organisational culture in a digital transformation, which is not discernible and easily interpretive. The interpretivism philosophy is considered much more suitable for this research as it allows the author to capture human interest through a more in-depth investigation of the digital culture.

Furthermore, this approach enables the researcher to understand specific business situations through observations of the social world. Data collection is typically done through qualitative research involving a small sample size to gain an in-depth investigation of digital culture. Interpretivism assumes that access to reality (given or socially constructed) is only through social

constructs such as language, consciousness, shared meanings, and instruments. Therefore, the data collection method through interpretivism tends to be more genuine, intimate, trustworthy and honest, hence providing a much more meaningful investigation.

Apart from understanding digital culture, this research also focuses on formulating an actionable digital culture transformation framework to foster the adoption of digital transformation. As such, pragmatism research philosophy will also be adopted to explore human thoughts that are intrinsically linked to their action. People take action in accordance with the possible consequences of their actions, and the results of their actions will be able to predict the consequences of similar actions in the future. Hence developing a digital culture transformation framework through a pragmatism approach will increase the likelihood of digital transformation adoption by businesses. According to Saunders et al., (2009), pragmatics view that there are many ways of interpreting the world, which suggests that mixed methods are possible. In light of the above discussion, a mixed method consisting of qualitative and quantitative is suitable for this research.

3.3 RESEARCH PURPOSE

According to Saunders et al. (2009), the classification of research purpose is threefold: exploratory, descriptive, and explanatory. Exploratory research allows researchers to discover the research subject, uncover new insights, and generate new ideas and theories. In addition, it effectively clarifies the understanding of a problem under research, mainly if the researcher is unsure of the precise nature of the problem. Extension to exploratory research is descriptive research. It relates to the existing phenomenon under study; hence, there is a need to describe, clarify and explain the inner relationships and properties of the research problems. Further to that is explanatory research which focuses on clarifying the cause-effect relationships of the phenomenon and variables under study.

This research focuses on exploring the critical elements of digital culture and subsequently formulating a conceptual framework from an emerging phenomenon, i.e. the digital transformation of small businesses. The purpose of this research will be two parts. The first part will be exploratory research, specifically focusing on investigating the elements of digital culture. Exploratory research is relevant in studies where the variables are not clearly defined, and there is limited theory to explain the phenomenon (Creswell, 2012), which in this research context refers to the digital culture and how to transform the digital culture. Saunders et al., (2009) suggest that

there are three principal ways of conducting exploratory research, which is: 1) literature search, 2) interviewing the subject matter expert, and 3) focus group interview.

The second part of this research will be explanatory. The purpose is mainly to investigate the relationship between the elements of digital culture and how it affects SME business performance. In addition, to study how the digital culture elements affect the digital transformation adoption by the SMEs. In explanatory research, many people use questionnaires to collect data, examine and explain relationships between variables (Saunders et al., 2009). In this research, the data obtained from the exploratory research will define the characteristic of digital culture in SMEs' digital transformation, which then becomes the critical variables. Subsequently, hypotheses will be generated and tested through explanatory research.

3.4 RESEARCH APPROACHES

There are two main types of scientific approaches in research: inductive and deductive (Saunders et al., 2019). The inductive approach involves theory generation by exploring a phenomenon, themes and patterns to create a conceptual framework (data to theory). On the other hand, the deductive approach involves falsifying hypotheses related to existing theories through the principle of reductionism (theory to data). The inductive approach is closely attached to interpretivism, while the deductive approach relates more to positivism. Since the research philosophy proposed for this research is interpretivism, an inductive approach will be adopted since digital culture transformation is still a new topic; hence, there is limited data to define a robust theoretical framework.

The first step is to gain clarity on the concept and elements of digital culture transformation. This will be done through the theory-building process via inductionism. The purpose is to understand what does it mean to have a digital culture? What are the elements of digital culture? Due to the lack of extensive theories and frameworks about digital culture transformation for SMEs, this research will build up from the existing empirical research, enhance it further, and explore the emerging themes through an inductive approach. However, the conclusion derived from inductive reasoning is limited to generating untested conclusions. To address this gap, Saunders et al., (2019) suggest an abduction approach by combining inductive and deductive approaches. Therefore, in this research, the author will adopt an abduction approach in order to generate testable conclusions

from the research (Saunders et al., 2019), aligns with the pragmatism philosophy applied in this research.

The abduction approach begins with the observation of the phenomenon and the generation of a plausible theory through an inductive approach. In this research, the method will be a sequential mixed method. Hence the sequential steps are to conduct interviews followed by a survey. The interview will allow the researcher to observe the phenomenon through an inductive approach. The researcher will then move from theory to data by operationalising the concept and generalisation of the conclusion through a deductive approach. At this stage, a survey will be used. In the deductive approach, the key advantage is that it allows the researcher to apply control to ensure the validity of data, in line with the explanatory purpose of this research.

3.5 RESEARCH DESIGN

The research design will be elaborated further by dividing it into two-phase since this research will adopt a mixed-method approach. Phase 1 will explain the qualitative data collection strategy, interview procedure and process, and data analysis method. The description of the qualitative research includes detail on the participants, pilots interview and proposed coding. Following that, Phase 2 will delineate the quantitative data collection process, questionnaire procedure, and analysis method. Subsequently, justifications for the use of online surveys are provided, including an explanation of the sampling process and size.Towards the end of this chapter, the integration of data collection methods will be discussed to describe the converging and triangulation of the reasoning. Finally, the chapter concludes with information on other essential elements, including time horizon, research timeline, research ethics, and challenges.

Table 3.6 below summarises the research design applied for this study. The selection of the research was guided by 'Research Onion' introduced by Saunders et al., (2009). The 'Research Onion' facilitates the process of designing the research methodology underlying the research design by 'peeling away' (i.e. identifying the elements) from the outmost layer of the 'onion,' i.e. the research philosophies and approaches towards the core of it, i.e. data types, collection and analysis methods. Argumentation and discussion for each layer are presented in the following sub-sections.

Table 3. 6: Research Design Summary

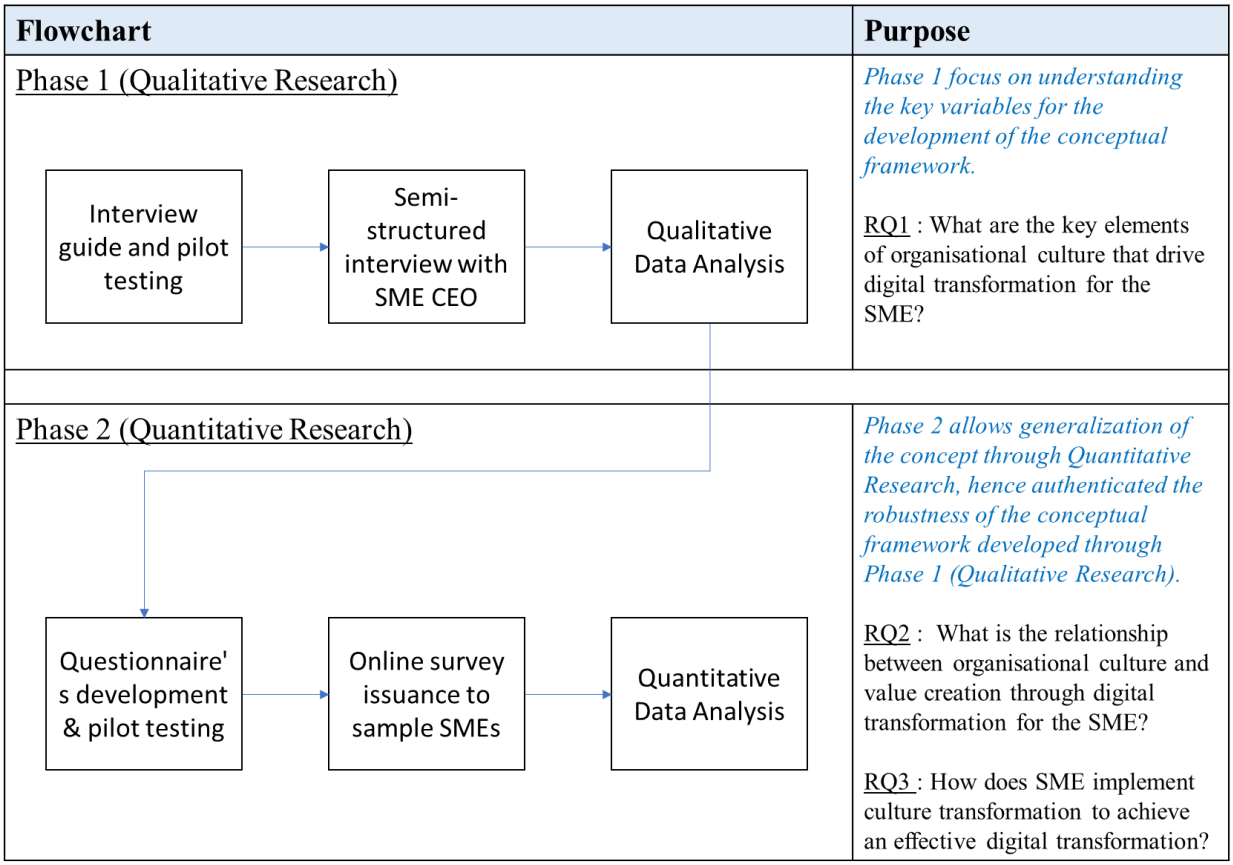
Research Philosophy	Positivism	Realism	Interpretivism	Pragmatism
Research Purpose	Exploratory	Descriptive		Explanatory
Scientific Approaches	Inductive	Deductive		Abductive
Research Method	Qualitative	Quantitative		Mixed method
Time Horizon	Cross-sectional		Longitudinal	
Data Collection	Primary data		Secondary data	

Source: Author analysis guided by 'Research Onion' by Saunders et al., (2009).

This research aims to explore the elements of digital culture and investigate the relationship between these elements with SMEs' business performance and their digital transformation adoption. An exploratory sequential design will be used to explore the concept via qualitative research and then to develop a context-specific theory that will be quantitatively tested. The first phase of the study will be a qualitative exploration of digital culture in SMEs. Primary data will be collected from an SME with a matured digital culture via a semi-structured interview with the CEO. From this initial exploration, the qualitative findings will be used to develop an online survey administered to a large sample. Then, the data will be analysed through an explanatory design to assess the variables' relationship and validate the research hypotheses.

For this research, the methodology will be a sequential mixed-method, a combination of both qualitative and quantitative. This methodology is in line with previous studies by Meissner & Sprenger, (2011) and Janićijević, (2011), which revealed that the hybrid approach, also referred to as mixed-method, is a logical choice of research methodology in organisational culture study. *Figure 3.3* below illustrates the sequential mixed method process flow applied in this research.

Figure 3. 3: Sequential Mixed Method Research Process Flow



3.5.1 MIXED-METHOD IN ORGANISATIONAL CULTURE STUDY

In the last three decades, there are two distinct analytical methods have appeared regarding research on organisational culture. They are subjectivistic-qualitative, which is based on a philosophy of interpretivism, and objectivistic-quantitative, which is based on positivism (Janićijević, 2011). These two approaches have opposing ontological and epistemological paradigms, meaning that they adopt contrasting worldviews and implement different types of research methods, i.e. quantitative vs qualitative. Each of the research methods has its advantages and disadvantages. Yauch & Steudel., (2003) has established specific strengths and limitations of the unmixed approaches in organisational culture study.

According to Yauch & Steudel., (2003), qualitative research certainly has its drawbacks as it is time-consuming and risks overlooking significant issues due to the results being subject to interpretation. However, somehow, it helps showcase a much clearer view and genuine data from

real industry practice, allowing the researcher to generate specific hypotheses tailored to the research goals. A quantitative or survey approach, on the other hand, can be easily implemented and evaluated due to its numerical statistics. Moreover, it allows researchers to analyse and compare the data among different companies and the agreement or disagreement received among survey respondents, making it a solid basis for supporting the hypotheses from the quantitative data.

However, the quantitative approach alone may have drawbacks, particularly in its implementation in organisational culture research. The reason is that, according to Creswell & Plano Clark (2011), one source of data is insufficient and unable to support research as a whole due to its inability to provide a holistic view of real situations. Furthermore, it prevents the analysis of the underlying justification behind the survey's responses. Schein, (2010) culture model has stated that quantitative methods may be applied in the research to investigate the values but not on the supposition, thus proving that a deeper understanding of organisational culture cannot be reached when the quantitative method stands alone.

Therefore, organisational culture research will work only when qualitative and quantitative data are combined under the mixed-method approach to study, understand, and fully capture the essence of organisational culture (Meissner & Sprenger, 2010; Janicijevic, 2011). It is helpful as the approach allows knowledge to be accumulated by using different methods to address the same issue (Martin, 2002; Creswell & Plano Clark, 2011). In addition, according to Yauch and Steudel, (2003), the mixed-method approach is an effective method in organisational culture study as it provides a profound understanding of the organisational culture by allowing researchers to analyse the underlying suppositions that drive values and behaviours effectively. Furthermore, the researcher gets to be informed on the theories, practices and different facets or methods in interpreting the same phenomenon (Yauch & Steudel, 2003).

In light of the above discussion, the mixed-method approach is appropriate for this research due to the complexity and dynamic nature of organisational culture, specifically in investigating a new concept of digital culture. In addition, the mixed-method approach offers a higher validity with lower bias, exemplified in the cultural dimension triangulation applied in research by Yauch & Steudel, (2003). Furthermore, it also allows the researcher to fine-tune the research design into

particular specifications tailored to this research goals, content, scope, and context while providing concept generalisation.

With this research design, the focus will be on the first stage, the qualitative phase, where the data will be collected and mixed from the preliminary phase, producing results that inform the author of the data collection in the second stage, the quantitative phase. This sequential mixed-method research design is popular among mixed-method researchers. In Phase 1 (Qualitative Research), the research will involve collecting data on the digital transformation efforts done by a pre-selected Malaysian SME with a matured digital culture through semi-structured interviews with the company's CEO. The key focus is to understand critical variables of digital culture for the formulation of the conceptual framework.

Following that, Phase 2 (Quantitative Research) was conducted. An online survey was administered to gain an in-depth understanding of underlying assumptions of digital culture practised, particularly from the point of view of the population. This quantitative research helps to justify and detail the qualitative results gained. Phase 2 aims to create generalisability of the concept through quantitative research while authenticating the robustness of the conceptual framework developed through Phase 1. The research design for this study is illustrated in Figure 4.1 above. The following sections will elaborate on the detailed process and procedures in implementing the sequential mixed-method for this research.

3.6 PHASE 1: QUALITATIVE RESEARCH

As discussed above, this research consists of two sequential methodologies; 1) qualitative interview and 2) quantitative survey. This first phase aims to understand the elements of digital culture in the SME through an exploratory approach. Exploratory research is appropriate when it is difficult to specify the actual problem and information requirement is undefined, such as the complexity of culture (Lekvall & Wahlbin, 2001; Patel & Davidson, 2011). Hence, to distillate the concept of digital culture, semi-structured interviews will be conducted. The purpose of the interview is to deeply explore the concept of digital culture (i.e., to investigate the key elements of digital culture) within SMEs in Malaysia and develop a conceptual model for SME digital transformation.

Guided by the research questions for this research and supported by analysis from the literature review, a semi-structured interview guide was prepared. Questions were designed to elucidate the digital culture, mindsets and behaviours of an SME with a matured digital culture. The interview guide outlines the topics that the researcher or interviewer will go through and probe the interviewee for further responses for information extraction (King, 2004). Furthermore, according to Miles & Huberman, (1994), the interview guide will act as a pre-instrument that will simplify the whole process of data collection and foreground two critical outlooks. Firstly is its internal validity (by comparing assessed answers from different respondents), and secondly is its generalisability.

Further probing following the guidelines was implemented for elaboration on the responses. The following sub-sections will elaborate on the interview guide for this research, outlining the objectives, participants, processes, interview questions, duration and management of data collected from the interview.

3.6.1 PARTICIPANTS IN QUALITATIVE RESEARCH

The selection criteria for choosing the participants for the interviews are:

a) The selection method will be through the convenience sampling technique, where the respondents will be selected from a population that is easy to contact and reach. Therefore, only companies that reside in the state of Selangor or Kuala Lumpur, Malaysia, were considered in the selection. The justification is that these two states represent Malaysia's highest population of SMEs. As a result, it would potentially contribute more value to a significant population of business establishments in Malaysia. Furthermore, this is in line with the target population discussed in *Chapter 1 - Scope of Research,* where both of these states represent the majority of SMEs in Malaysia.

b) The categorization of the SME population that will be involved in this qualitative research covers both the micro-enterprises and small and medium-sized enterprises.

c) The SMEs should be in the retail sector. The rationale is that the retail sector is the most susceptible to digital disruption, indicating higher urgency for digital transformation. Furthermore, the retail sector is among the significant sub-sectors that contribute to Malaysia's

GDP. Therefore, by understanding and investigating this matter in the retail sector, the outcome of this research could provide a more significant impact on the industry as a whole.

d) At an individual level, the interviewee shall be the CEO or business owner of selected SMEs that have undergone digital transformation. This refers to companies that previously conducted their business using traditional methods but now have evolved by adopting digital technologies to grow their business. The critical factor is to find an interviewee that is willing to participate in this research.

e) The number of participants for the pilot study is one company. The subsequent interview for the actual research was with Company 2. The data collected from both companies showed repetitive answers, which exemplified that data saturation had been achieved and adequately represented the target population of the research. The data is considered to have reached data saturation when the findings are no longer producing new additional information (Charmaz, 2006; Hamp-Lyons & Morrison, 2007). Therefore, the number of participants for this study is considered adequate.

Based on the above selection criteria, the researcher identified interviewees for two purposes; 1) the pilot study and 2) the actual research. The interviewee for the pilot study is not from the same company as the actual study. The reason is that the researcher wants to gather profound insights from the actual study. Hence the interviewee for the actual study will be carefully selected and must demonstrate a robust digital culture in its organisation. The summary of the profile of the interviewees is as per *Table 3.7* below:

Table 3. 7: Interviewees Profile

Pilot Study (Company 1)	
Date of interview	26/01/2021
Time of interview	10:00 PM – 11:00 PM (Malaysia Time)
Business sector	Retail
Business segment	Food and beverages (Korean food)
Location	Selangor, Malaysia
Years in business	4 (since 2018)
Company size	About 10 employees
Online marketing channel	Facebook, Instagram, Twitter, Shopee, Lazada, Grab, FoodPanda, and own website,

Establishment background	Start as a solopreneur and home-based business. The company market its products mainly through online channels. Set up a physical store in 2020. The company specialises in the production of Korean food, and their main products are Homemade Kimchi, Chunjang (Black Bean) Paste and Gochujang (Red Chili) Paste.
Actual Research (Company 2)	
Date of interview	30/04/2021
Time of interview	3:00 PM – 4:00 PM (Malaysia Time)
Business sector	Retail
Business segment	Automotive (Car battery retailer)
Location	Selangor, Malaysia
Years in business	7 (since 2015)
Company size	201-500 employees
Online marketing channel	Facebook, Instagram, Twitter, Linked In, Youtube, Shopee, Lazada, own mobile apps, and own website.
Digital payment adopted	TouchnGo e-wallet, GrabPay, Boost, Mastercard, Visa, and FPX online payment.
Establishment background	The company started as a supplier of car batteries for the B2B (business-to-business) segment. They evolved to cater to the B2C (business-to-customers) segment by offering battery delivery services, setting up a call centre using their personal phones, and adapting the process. Then, the company launched its mobile app and its gig worker programme, including training for freelance technicians. The company grew leaps and bound by making customer's experiences its absolute priority. Now, stranded drivers can reach them anytime, anywhere, hassle-free from multiple touchpoints 24 hours a day via app booking, web booking, hotline, WhatsApp, social media or even walk in straight to their shops.

Source: developed by the author for this research

3.6.2 PILOT INTERVIEW

Once the interview guide was produced, a pilot study was conducted with two main objectives: 1) to assist in evaluating the effectiveness of the interview in extracting key insights, and 2) to facilitate the process to recognise any issues with the interview structure and plan. Participants for the study were selected within the SME network via the convenience sampling technique. The profile of participants for the pilot interview is as per *Section 3.6.1 – Participants in Qualitative*

Research. The pilot interview result shows that no issues arose during the pilot study. The participant understood the questions being asked and responded well. Hence no modification to the procedures and the interview guide is required. Consequently, the researcher continued with the actual research interview per the guide.

3.6.3 INTERVIEW GUIDE

The guide was produced by interpreting and extracting critical concepts identified from the literature review into questions that were then used to ask the participants about a specific subject in greater depth. All of the questions built comprise three broad aspects of research areas: 1) the company's organisational culture in its digitalisation journey, 2) organisational behaviour in implementing the digital transformation, and 3) value creation gained from their digitalisation effort. These questions were specifically designed to obtain descriptive feedback from the participants.

3.6.3.1 OBJECTIVES

The objective of the interview guide is to serve as terms of reference in conducting interviews for this research. The purpose of the interviews is to explore the digital culture (i.e., to investigate the key elements of digital culture) within SMEs in Malaysia and develop the conceptual model for SME digital transformation. The anticipated outcomes are:

a) To identify the organisational culture variables or critical elements that drive digital transformation for the SME.

b) To determine how SMEs implement digital culture transformation to achieve an effective digital transformation.

c) To understand the relationship between organisational culture and value creation within SMEs through digital transformation.

Data collection for the first part of this research will be through a semi-structured interview with selected SME leaders. Data obtained will be analysed, focusing on understanding keywords and distinctive patterns from the interviews. Findings from the qualitative analysis will lead to identifying a detailed picture of an SME's organisational culture in the context of digital

transformation. From this, the researcher could determine the key variables that will be consequently tested through a quantitative research approach.

3.6.3.2 INTERVIEW PROTOCOL

The interview protocol to conduct the interview is as follows:

1) Critically identify the research participants in accordance with the selection criteria.

2) The potential interviewees were contacted by e-mail once they were chosen. The purpose of the e-mail is to invite the participant to a meeting and obtain consent for the interview.

   All who were approached agreed to participate in the study and be interviewed. The researcher reinforced the information given at the start of the study by reaching out to them via e-mail. This process gave the contact person time to think about the details and consider any concerns or doubts before the interview.

   Gillham, (2005) mentioned that preparing the participants ahead of time before the interview will raise both pragmatic and ethical facets. It allows the participants to consider whether or not they want to provide the details on the subject discussed and their choice of words on what they would want to say and get themselves prepared accordingly. Preparing the participants for better clarity on what they are required to do and how the information disclosed will be used is crucial in setting the interview's tone, which in turn affects the respondent's trust and frankness.

3) In the interview invitation text, participants were reminded of the following points:

   a. The study's objective.

   b. The interview's conditions. The key subject areas of the interview were communicated to the invited participants.

   c. Technical aspects of the interview process, such as the expected length of the interview, interview location selection, and interview confidentiality.

   d. Also attached in the e-mail is the non-disclosure agreement for the interviewees to review and respond to.

4) Upon agreement, set a date and time for the interview. The meeting will be conducted either through a virtual interview or face-to-face. If a virtual interview, a Zoom meeting link will be sent to the participant accordingly. Interview questions will be shared through e-mail in advance (at least three working days before the interview date) for the participant to prepare for the interview. Due to the Covid-19 pandemic, which restricts physical meetings, the interviews conducted for this research are mainly through online meetings using the Zoom meeting application.

5) Conduct the interview. The interview will have two sessions. The first session is the pilot study. Following that, the researchers will amend the interview guide if necessary and proceed with the second session, which is the actual research interview.

6) During the interview, the interviewee will be brief on the purpose of the study, reiterate the anonymity of their participation and how the session will be conducted, followed by the semi-structured interview questions. Video or voice will be recorded during the session. All interviews were recorded with the interviewees' permission and transcribed for analysis.

7) Towards the end of the interview, thank the interviewees for their participation.

8) Data collected from the interview will be analysed using Qualitative Data Analysis software (e.g., NVIVO). Transcripted interviews served as the central part of the qualitative data. The data were filtered to eliminate personal identifiers, and quotes were carefully selected to highlight the interview's key insights.

3.6.3.3 INTERVIEW QUESTIONS

There are five main interview questions. These questions were designed to cater to three main core areas of study, which are; 1) SME culture and experiences in undergoing digital transformation, 2) their behaviour and mindsets in implementing the transformation program, and 3) the indicative insights on value creation from the digital transformation. The semi-structured interview questions are as shown in *Table 3.8* below:

Table 3.8: Semi-structured Interview Questions

No	Interview Questions	Areas of study
1	How long have you been embarking on digital transformation for your business?	SME culture and experiences in undergoing digital transformation
2	How do you embark on digital transformation for your business? (understanding the process of digital transformation)	
3	What are the critical elements of culture that you think is the most important in driving your success in digital transformation?	Behaviour and mindsets in implementing the transformation program
4	How do you play your role as a leader in driving digital transformation?	
5	Based on your experience, how much value creation was gained from the digital transformation? (perhaps in percentage-wise)	Insights on value creation from the digital transformation

Source: developed by the author for this research

3.6.3.4 DURATION

The estimated duration of the pilot interview is about 45 to 60 minutes. During the pilot interview, the total time is 45 minutes, thus giving the researcher an idea of how long the actual interview would sum up. However, the actual research interview duration is about 50 minutes, slightly longer than the pilot interview. The reason is probably that the discussion during the actual research interview is much deeper than the pilot interview.

3.6.3.5 MANAGEMENT OF INTERVIEW DATA

The interview data collected from online interviews were recorded using Zoom Online Meeting. Zoom is a cloud-based videoconferencing service that includes features such as online meetings, community messaging, and secure session recording. Due to its relative ease of use, cost-effectiveness, data management functionality, and security assurance it offers, the findings indicate that Zoom is a viable tool for collecting qualitative data. The video recordings are then saved to the personal laptop of the researcher, and the transcripts are analysed, and checked for any inaccuracies and errors.

To ensure additional security to the research data, the laptop is only accessible by the researcher using a fingerprint login, preventing unauthorised access to the laptop. All data will be uploaded

to Google Drive storage as a backup. The main reason for data backup is to save important files if a system crash or hard drive failure occurs. Data uploaded into Google Drive are stored in secure data centres and protected from unauthorised access through the Google Drive encryption system.

Video or audio recordings for qualitative data analysis will be processed using the NVivo system. NVivo is a qualitative data analysis computer software that helps organise, analyse and find insights in unstructured or qualitative data like interviews. The system uses a proprietary tool to process the data. All data is held and processed within the NVivo system, so the security and privacy of data remain within the researcher's control. Transcriptions were done word for word by the researcher himself. Multiple times listening to the recordings allow the researcher to fill in gaps where the transcriptions could have missed essential discussion points.

The researcher continuously kept in mind an ethical duty to protect from disclosing sensitive information shared by the interviewees, such as financial information, sensitive organisational information and personal data. The recording data will not be disclosed on any channel, such as social media, websites, and other platforms accessible to the public. Both the interviewees and researcher will sign a Non-Disclosure Agreement to ensure the anonymity and confidentiality of the data collected from the interview session.

3.7 PHASE 2: QUANTITATIVE RESEARCH

The first phase of this research, the qualitative phase, was conducted to inform the second phase, the quantitative phase. In the sequential mixed method design, the qualitative and quantitative are connected in consecutive stages, guided by the results of the data analysis from the first phase of the research. According to Saunders et al., (2009) the use of quantitative analysis in mixed-method research provides a generalisation of the concept. This research investigates the digital culture among SMEs in Malaysia. Therefore, relying solely upon studying a single case study through qualitative research may not be effective. Hence, to reinforce the validity and rigour of the concept, quantitative research is crucial to support and provide a sense of relative importance in a broader context of the population.

The unit of analysis for this research is the SMEs in Malaysia. As such, an online survey targeting the pre-determine population sample was developed and distributed. The quantitative method is

suitable for capturing insights from a large proportion of the target population. Using a quantitative method to test the concept of digital culture in this research aligns with similar studies conducted previously in digital transformation research. A pilot survey also was conducted to test and validate the conceptual model and ensure the questions were answerable and the data collected was reliable. Since the result obtained from the pilot survey is satisfactory, and the participant had no issue completing the survey promptly, hence there are no significant changes to the questionnaire developed. The following sub-sections will elaborate on the survey participants, questionnaire, measurement of variables and data analysis method.

3.7.1 PARTICIPANTS IN QUANTITATIVE RESEARCH

The target population for this research is SMEs in selected states of Malaysia (i.e. Selangor and Kuala Lumpur). Since it is impracticable to collect data from the entire population, this research will investigate the research problems by collecting data from a sample representing the entire population. According to Saunders et al., (2009) there are two broad sampling methods; 1) probability and 2) non-probability sampling. Since the purpose of the quantitative research in this study is to obtain a generalisation of the concept, the probability sampling method is the most suitable. Probability sampling, also known as representative sampling, is a typical quantitative testing technique that involves selecting many people representing the subset of the population of interest. Probability sampling is also commonly used in survey-based research.

Simple random sampling, one of the subsets of probability sampling, was implemented in this study by selecting people randomly via a systematic method like random numbers table to ensure each individual within an identified population has an equal chance of being chosen. The sampling frame for this research is a complete list of all SMEs in Malaysia. The list was obtained through several online databases, such as the Ministry of Entrepreneur Development and Cooperatives of Malaysia, SME Corporation Malaysia, and Malaysia SME Business Directory. Since there is no centralised database of SMEs in Malaysia, the researcher has compiled the list of SMEs in Malaysia and considered that as the sampling frame for this research.

A detailed and thorough quantitative analysis usually needs a large sample size to satisfy the criteria of the planned statistical tests while still providing a fair approximation of the population's parameters (reducing sampling error and providing adequate power). While there are several guidelines for quantitative samples to be followed, like a minimum of 30 participants for a

correlational study and 350 for the population survey, the most practical approach is to use the sample size formulas found inside the research methodology textbooks. Since the population of SMEs in Malaysia is very large, at about 907,065 SMEs, hence the most appropriate sample size will be about 384 (Cochran, 1953; Saunders et al., 2009). This sample size represents the population at a 5% margin of error and 95% confidence level.

3.7.2 QUESTIONNAIRE

The data collection strategy for the quantitative phase in this research will be through a survey, using a questionnaire as an instrument to collect data. This method conforms to the explanatory purpose of this research. Furthermore, various studies in digital transformation use questionnaires to collect data as it enables researchers to explain relationships between variables in a structured analytical way. According to Saunders et al., (2009), there are broadly two types of questionnaires; 1) self-administered and 2) interviewer-administered. A self-administered questionnaire refers to a survey completed and administered by the respondents. In contrast, an interviewer-administered questionnaire requires the researcher to administer and record interviews such as through calls or structured interviews.

This research employs a self-administrated questionnaire method. It is much more efficient and faster mainly for this research compared to the interviewer-administered questionnaire. It also allows the researcher to reach a more comprehensive coverage of SMEs across Malaysia efficiently. The questionnaire will be administered electronically using the Internet, which is also referred to as an online questionnaire. The majority of the SMEs in Malaysia are well versed in using the Internet; hence there should be no major issue for them to participate in the survey. Furthermore, an online questionnaire is very efficient in its distribution process while requiring significantly low expenses. The following sub-sections will elaborate on the structure of the questionnaire, pilot study and survey procedures.

3.7.2.1 STRUCTURE OF QUESTIONNAIRE

From the Phase 1 qualitative research findings, the researcher developed a questionnaire using Google Forms containing 23 questions. This research utilised a structured questionnaire with multiple choices. The introduction section at the beginning of the questionnaire highlights the purpose of the survey, reminding the respondents that their participation is entirely voluntary, and

provides contact detail of the researcher in case the respondents have any inquiries. The questionnaire consisted of four parts; 1) background, 2) understanding digital culture, 3) implementing digital culture, and 4) value creation from digital transformation. There are 23 questions in the questionnaire, which is considered reasonable to maintain the participant's responsiveness and attention.

Results from the Phase 1 Qualitative Research were analysed and become input for the questionnaire design. The first part of the questionnaire is the background, asking about the respondent's status of their digital transformation adoption. This is an important data point as it is primarily the dependent variable. Then, the second part of the questionnaire focuses on understanding their organisation's digital culture. The questions were designed to achieve Research Objective 1, which is to determine the key elements of digital culture that drive digital transformation for the SME. The result from Phase 1 Qualitative Research uncovered core elements of the digital culture of the SME in implementing digital transformation. These elements are the independent variables and formed the building blocks for a culture transformation framework and were then tested through Quantitative Research in Phase 2 to achieve concept generalisation.

The third part of the questionnaire will ask how they implement digital culture in their organisation. The questions were designed to achieve Research Objective 3, which is to develop a digital culture transformation framework for the SME to achieve an effective digital transformation. In this part, respondents will rate whether the driving factors in implementing a digital culture truly describe their organisation or not, also by using a four-point Likert scale. Finally, the fourth part focus on understanding the impact of digital transformation on their organisation. The respondents will provide indicative impact or value creation, in terms of percentage of improvement, through multiple choices to be selected. The questions were designed to achieve Research Objective 2, which is to analyse the relationship between digital culture elements and value creation through digital transformation for the SME.

The questionnaires must capture unwavering responses from participants, so the hypothesis will be tested using a four-point Likert scale. The strategy of using a four-point Likert scale is basically to ensure a vivid polarisation and evenly split into simple dichotomies of responses from the respondents. The questionnaire design will exclude options to omit the questions or choose the

midpoint, such as by allowing the participants to select “not applicable” or “neutral” as their response. Using a four-point Likert scale will enhance the survey instrument's reliability and validity, prevent respondents from giving ambiguous answers and reduce response bias (Chyung et al., 2017)

3.7.2.2 PRE-TEST AND PILOT SURVEY

Upon completion of the draft questionnaire, a pre-test was conducted. A pre-test is vital to ensure that the questionnaire is clearly articulated, respondents interpret the questions correctly, and that the survey instrument is valid and reliable (Ruel et al., 2016). Data collection for the pre-test follows the same administrative technique as discussed in the following sub-section. In this research, only the survey instrument will undergo a pre-test. Subsequently, before launching the primary survey, a pilot survey was conducted to ensure the survey’s validity using a convenience sample of the target population.

The participants for the pre-test and pilot study were selected based on a simple random sampling method. The respondents' profile elaboration is as per *Section 3.7.1 – Participants in Quantitative Research*. A small sample of ten SME business owners from Selangor and Kuala Lumpur were selected to be part of the pre-test and pilot survey, which is considered adequate (Fink, 2009). According to Fink, (2009) a minimum number of participants for a pilot study is ten. Therefore, the number of participants for the pilot study in this thesis is also ten SME business owners from Selangor and Kuala Lumpur.

The pre-test result is that the respondents reviewed the questionnaire in terms of its wording, understandability, wholeness, and navigation issues. Since it is an online survey, there is no issue in navigating the survey using Google Forms. Ten companies were involved in the pre-test. The respondents express a good understanding of the questions and able to interpret them correctly. Following that, a pilot survey was conducted involving another ten companies. From the pilot survey, the researcher noticed no major problem with the questionnaire. Hence there are no changes to the questionnaire. Consequently, the questionnaire was then used for the actual survey. The result of the pilot survey is then also included as part of data collection for the main survey and data analysis.

3.7.2.3 SURVEY PROCEDURE

The initial set of a Google Form questionnaires was issued to identified participants through convenience sampling as a pilot study. Google Forms is a free online survey platform typically used in online surveys. The questionnaire will be disseminated through Google Forms, and the disclaimer will be attached to the first part of the questionnaire. Once the pilot survey is conducted and the questionnaire finalised, the researcher will set up the sampling frame. The list of SMEs in Malaysia was compiled into a Microsoft Excel file for a more manageable arrangement. Then, the SMEs participating in the survey were selected using a simple random sampling method. The selection of participants is assisted by using an automated Microsoft Excel function to generate random samples.

Subsequently, preliminary survey invitations were issued to all identified samples. The researcher sent the survey invitations through e-mail that stated the study's purpose, reminding them of their consent for participation and highlighting the impact of their contribution to the study. Some participants will also be invited through social media channels such as Whatsapp, Instagram, and Facebook. These channels are somehow quite effective in engaging their participation as they are much more popular and accessible. Furthermore, invitations through e-mail sometimes bounced back due to the invalidity of their e-mail, probably because the databases that captured the SMEs e-mail addresses were outdated.

Therefore, a reminder e-mail was issued to the SMEs who had not yet responded to the survey three weeks following the preliminary invitation in order to address this issue. This e-mail stated that a survey invitation had been sent and that anyone who had not yet responded should do so. To increase the engagement level through an e-mail invitation, the researcher used an online e-mail marketing software, i.e. SendinBlue.com, to personalise the e-mail's content and gain more effective survey distribution.

3.7.2.4 DURATION

The total time to complete the survey for each participant is estimated to be about five minutes. The data collection process is anticipated to take about four months, considering the likelihood of potentially low participation in the survey since SMEs may be having difficulties managing their business in the current Covid-19 pandemic.

3.7.2.5 MANAGEMENT OF SURVEY DATA

The survey will be conducted online using Google Forms. The system protects the users through the existing Google Privacy Policy. Data collected from the survey is only accessible to the researcher through his Google Accounts, hence preventing the possibility of any data breach. The researcher will act with integrity to ensure the data is stored in a secure manner and protect the confidentiality of the participants.

3.8 INTEGRATION OF METHODS

Integration of methods in this exploratory sequential mixed method will be done by merging both qualitative and quantitative databases and results together for analysis and comparison (Fetters et al., 2013). Findings from the *Phase 1 – Qualitative Research* will reveal the key concepts that will inform *Phase 2 – Quantitative Research* and to be measured in an online survey. Subsequently, findings from both phases of research will be tabulated and analysed. Finally, the interpretation of results from the combined research findings will be conducted through a *weaving approach*, which basically involves writing both findings together on a theme-by-theme or concept-by-concept basis (Fetters et al., 2013). Finally, the author of this research will describe the qualitative and quantitative findings in a single report and present them at the end of *Chapter 4 – Data Analysis*.

3.9 TIME HORIZON

According to Saunders et al., (2019) time horizon in research is broadly classified into two main categories; 1) cross-sectional and 2) longitudinal. Cross-sectional refers to the research of a particular phenomenon at a particular time. Whereas longitudinal refers to research observing change and development over an extended time (i.e. months, years or decade). Based on the time horizon categories above, this research will be conducted through a cross-sectional time horizon. The reason is that digital transformation is a phenomenon that rapidly changes over time; hence it is challenging to observe the development of the phenomenon in a limited time frame of research. The focus will be on exploring digital transformation in the SME at the current time. Other emerging concepts from time to time could be further developed in future works of research.

3.10 RESEARCH ETHICS

Research ethics is vital for the achievement of this research. This is because proper ethics builds up the establishment of trust, responsibility and mutual respect, with the primary objective of expanding the body of knowledge of the research subject. The ethical considerations for this research are as follows;

Informed consent

Prior to conducting the interview, participants will be notified a few days in advance through e-mail before the interview session. Earlier permission and consent from the individuals who will participate in this research will be acquired. During the interview session, participants will be brief on the purpose of the study, reiterate the anonymity of their participation, and how the session will be conducted. Consent from the participant will be sought before proceeding with the interview session. This research does not contain any data that is classified as ethically sensitive. Questions asked during the interview session will respect the context of sensitivity and will not disregard the respondent's security and belief. The author will ensure no personal biases and opinions during the interview sessions.

Subsequently, during the second part of the research, collecting data through an online survey, the questionnaire will be disseminated through Google Forms. The disclaimer will be attached to the first part of the questionnaire. The disclaimer will inform the survey participants of the purpose of the research and indicate that all information will be treated strictly confidential and used only for the research purpose. The disclaimer also informs participants that their participation will remain anonymous. The introduction section of the questionnaire also will encourage participation without making it mandatory. Participants of the survey will have the option to participate in the survey or opt not to participate.

Feedback after interview

The first part of the research will be collecting qualitative data through interviews. Feedback will be provided mainly upon completion of the interview session. The feedback will consist of appreciative and constructive feedback. Appreciative feedback primarily highlights the person’s strength in implementing a successful digital transformation agenda and compliments them for their passion during the process. Constructive feedback could highlight any room for improvement

that the company could consider in executing a robust digital transformation from the perspective of academic research.

Confidentiality and anonymity

In the first phase, qualitative research, the primary data collected from the interview session will be in the form of video or audio recordings. The recording data will be kept in secured data storage. The recording data will not be disclosed on any channel, such as social media, websites, and other platforms accessible to the public. The participants and researcher will sign a Non-Disclosure Agreement to ensure the anonymity and confidentiality of the data collected from the interview session.

During the quantitative research, the online survey will be conducted using Google Forms. Responses collected are stored in a secured database that can only be accessed through the researcher's Google account. By doing this, the researcher prevents unauthorised access to the data hence protecting the data confidentiality. Furthermore, a survey disclaimer will be included as an additional level of legal protection that enhances the promises by the researcher in ensuring the confidentiality and anonymity of respondents.

Managing anticipated risks

The risk to participants is that they may need to share critical information as input for the researcher to analyse the impact of digital transformation on the company's profitability, productivity, and customer satisfaction. However, this critical information may be considered sensitive to the company, notably if it is leaked to its competitor. Therefore, the researcher will not request a specific financial statement or confidential operational data from the participants to mitigate this risk. Instead, the interviews and questionnaires will be structured to allow participants to provide their responses in the form of the estimated value range in percentage of improvement rather than absolute numbers of financial or operational gains.

Unethical research conduct may lead to potential reputational damage to the University of Wales Trinity Saint David, Westminster International College or London School of Commerce. Therefore, the researcher will ensure a high standard of data protection and privacy within the organisations involved and safeguard the university's reputation. The researcher will also exercise good judgement by seeking clarification or proper authorisation before disseminating confidential,

proprietary, sensitive, or personal information. This research will comply with all relevant regulations and legal requirements such as Personal Data Protection, the University's Research Integrity and Ethics Code of Practice and the University's Research Data Management Policy.

Data management and protection

Electronic transfer of data for this research will mainly be videos or audio recordings data, and Google Forms online survey data transferred to the researcher's laptop for analysis. No personal data and unique category data will be collected for this research. Nevertheless, the participant's personal data will be protected and governed by the Personal Data Protection Act (PDPA), enforceable in Malaysia. The Malaysian government enacted the PDPA in 2010 to protect individuals' data in commercial transactions. Furthermore, only the principal researcher and director of studies will have access to the data generated by the research activity.

Data collected for this research will be stored on the personal laptop of the researcher. The laptop is only accessible to the researcher through fingerprint login hence preventing unauthorised access to the laptop. This security measure prevents the risk of theft or missing the laptop, which may lead to data leakage. Videos or audio recording data analysis will be processed using the NVivo system. The system uses a proprietary tool to process the data, and it is fully integrated with NVivo. All data is held and processed within NVivo, so the security and privacy of the data remain within the researcher's control.

To ensure additional security to the research data, all data will be uploaded to Google Drive storage as a backup. The main reason for data backup is to save important files if a system crash or hard drive failure occurs. Data uploaded into Google Drive are stored in secured data centres and protected from unauthorised access through the Google Drive encryption system. Data collected from the online survey will be kept in the Google Forms database, mainly in Google Drive storage. The data will mainly be quantitative data reflecting the responses from participants to the survey questionnaires. Data protection in this platform remains solid as Google constantly strengthens its built-in security technologies to detect and protect against evolving online threats before they ever reach its users.

Analysis of the quantitative data will be conducted through IBM SPSS Statistics software. The system delivers a robust set of features that lets the researchers extract actionable insights from its

data. In addition, data stored in the IBM SPSS system are protected with adequate system encryption. All research data will be stored for about three years (i.e. until 2023), mainly upon completion of this research. After that, data will be archived into the Google Drive storage for future reference if required.

Referencing

Harvard Referencing system will be used for any data sources referencing. This method complies with the university requirements as well as enables readers to identify the sources.

3.11 CHALLENGES IN MIXED-METHOD

Although the mixed method design approach is regarded as appropriate for this research, numerous challenges surfaced during implementation. First, a mixed method requires extensive data collection to be obtained and analysed, which can be resource-intensive and time-consuming. Moreover, analysing both qualitative and quantitative research approaches was very time intensive as it required the researcher to focus on more than one type of data at one time. Furthermore, implementing a mixed-method approach requires the researcher to be well-versed with both approaches. Hence, having an in-depth understanding of the approaches is crucial since mixed-method research designs tend to be complex.

This research adopts an exploratory sequential mixed-method design to manage the complexities of the mixed-method design. According to Creswell & Clark, (2018), an exploratory sequential design is much more straightforward to implement, hence alleviating the complexities of using a mixed-method design. In the exploratory sequential design, the researcher implements the methods in separate steps. The separation into two distinct stages makes it easy to describe and report the study. However, a critical challenge in a sequential design is knowing when to stop analysing the data to progress the research sequence from one method to another. Hence, to overcome this issue, a comprehensive research thinking process was prepared to guide the research process and sequencing.

3.12 CHAPTER SUMMARY

This chapter discusses the research methodology adopted for this research. It starts with a discussion on the conceptual model. Following that, it provides justification for the research philosophy, research purpose, and link to appropriate approaches. Following that, this chapter provides a detailed discussion on the suitability of a mixed method research design in organisational culture study. This research adopts an exploratory sequential mixed method research design. There will be two main phases involved in this research; 1) *Phase 1-Qualitative Research* and 2) *Phase 2-Quantitative Research*. The detailed research processes across the two phases are then explained. Justifications for the use of the respective methods are also provided.

There are mainly two primary data collection methods in this research; 1) interview and 2) online survey. This chapter provides a detailed explanation of the interview process, questionnaire development and distribution process, participants involved during each of the research phases, and data analysis methods were discussed. Subsequently, this chapter clarifies the time horizon aspect, anticipated timeline to complete the research and research ethics in detail. The chapter concludes with information on challenges in mixed-method that are affecting this research. Several countermeasures to overcome those challenges are also explained. The next chapter presents the data analysis and findings from the research.

CHAPTER 4: DATA ANALYSIS

The data analysis will have two parts. The first part is the qualitative data analysis. The qualitative data analysis section starts with an elaboration on the interview participant profile. In this section, the findings are presented in three themes. The first theme relates to digital culture elements. Subsequently, the second theme concerns value creation from digital transformation. Finally, the third theme is about implementing the digital culture. The discussion on each of the themes will include a synopsis of the main findings while placing them in the context of other works of literature that has been discussed in *Chapter 2 – Literature Review*. A summary of the findings will be provided at the end of this section which primarily served as the foundation for the subsequent quantitative research.

In the second part, the quantitative data analysis section, questionnaire response rate and data reliability will be presented. Following that, descriptive statistics will be provided in order to illustrate the context of the population sample. Next, all of the hypotheses outlined in *Chapter 3 – Research Methodology* of this research will be validated by evaluating the relationship between the variables and testing whether there is a positive association or not. The primary purpose of the quantitative analysis in the mixed method of this research is to provide generalisability of the concept while authenticating the robustness of the conceptual framework. Towards the end of this chapter, a summary of the chapter will be provided, discussing the overall results of the qualitative and quantitative data analysis with alignment to the research objectives and findings.

4.1 DATA ANALYSIS PROTOCOL

4.1.1 DATA COLLECTION PERIOD

The data collection period for each phase in this research is shown in the *Table 4.1* below.

Table 4.1: Data Collection Period

No	Interview Questions	Data Collection Period
1	Phase 1: Qualitative Research	• Overall: January – April 2021 (4 months) • Pilot survey: January 2021 • Actual research: April 2021
2	Phase 2: Quantitative Research	• Overall: May – September 2021 (5 months) • Pre-test: May 2021 • Pilot survey: Jun 2021 • Actual research: July - September 2021

4.1.2 QUALITATIVE DATA ANALYSIS METHOD

The data analysis process for this research will be using software-assisted Qualitative Data Analysis (QDA) tools. The QDA is a system that helps in content analysis, transcription, discourse analysis, coding, text interpretation, recursive abstraction, and interpreting data collected from the interview. The software assists in deciphering the context and content of the data, which could tremendously ensure a more structured and better quality of the findings. Among examples of QDA software are the NVivo, ATLAS.ti, MAXQDA and Quirkos. In this research, NVivo (Version 12) will be used for qualitative data analysis.

According to Braun & Clarke, (2006), qualitative data analysis approaches can be divided into two camps. The first camp covers those that are attached to a particular theoretical or epistemological role, with minimal flexibility in how the approach is applied within the chosen framework (for instance, conversation analysis and interpretive phenomenological analysis). The second camp consists of those processes that are theoretically and epistemologically independent and may be used when applying qualitative approaches. Hence, thematic analysis belongs to the second group.

Thematic analysis is a typical qualitative data analysis technique used in identifying trends within the qualitative data. It uses reduction techniques through segmentation, categorisation, summarisation, and reconstruction of the qualitative data to encapsulate the key concepts within a data set (Ayres, 2008). Thematic analysis is the ideal method for this research. It is a helpful

technique that offers flexibility and does not require any technical procedures of other qualitative analysis methods. Furthermore, it is relevant for a variety of theoretical and epistemological approaches. Further elaboration on the data analysis process for this research is presented in the following sub-sections.

4.1.2.1 FAMILIARISING WITH THE DATA

The researcher had some prior knowledge of the data, particularly on organisational change and digital transformation. From there, the researcher developed some initial thoughts before conducting the interview. Thus, the first thematic analysis entails the researcher's immersion in the data and is accustomed to the study context's depth and breadth (Braun & Clarke, 2006). This analysis was accomplished by examining the preliminary data gathered from various works of literature in search of patterns and listening to the audio recording of the interviews several times. Furthermore, the researcher read through the transcripts and made notes on the general themes discovered from the data collected. The interview transcript was then studied again, impressions and ideas were noted, and general themes were identified.

4.1.2.2 GENERATING INITIAL CODES

Qualitative data analysis for this research involves the generation of initial codes. Codes are used in qualitative data analysis to classify text fragments or passages, assigning symbolic significance to descriptive or inferential data (Miles et al., 2013). As the primary source of data, the interview transcripts were then coded. Next, line by line, transcripts were thoroughly checked, and text labels were tagged to each segment. The major groups were then freely generated and referred to as general descriptors of the data at this open coding stage. Finally, the transcripts were reread, and headings were written to explain the content.

Each of the codes will act as a label to be attached to the interviewee's comments. The coding processes have provided a thorough analysis as it formed an audit trail, linking the raw data to emerging groups. The codes are categorised based on focus areas, and these categories were then analysed separately to define sub-themes in relation to the focal area. However, manual coding of the qualitative data is complicated. Hence, using computer-assisted QDA software (i.e. NVivo) will provide the researcher with quick and easy access to a large amount of data and the ability to code with accuracy for this study.

The anticipated coding in relation to the interview questions is shown in the *Table 4.2* below:

Table 4.2: Initial Coding for Interview

No	Interview Questions	Anticipated coding
1	How long have you been embarking on digital transformation for your business?	Pioneer; leading; first mover; follower; still developing;
2	How do you embark on digital transformation for your business? (understanding the process of digital transformation)	Leadership; top-down; bottom-up; engage with employees; innovation; experimentation
3	What are the critical elements of culture that you think is the most important in driving your success in digital transformation?	Customer-centricity; vision; innovation; new ways of working; digital talent; IT support; talent;
4	How do you play your role as a leader in driving the digital transformation?	Collaboration; risk-taking; an agile way of working; lean structure; supportive; lead by example
5	Based on your experience, how much value creation was gained from the digital transformation? (perhaps in percentage-wise)	10%; 20%; more than 30%; significant; moderate; financial; productivity; efficiency; customer satisfaction

Source: developed by the author for this research

4.1.2.3 DEFINING AND NAMING THEMES

Once the interview transcripts had been coded and compiled, the researcher searched for themes. The process involves sorting and collating relevant coded data extracts into common categories known as themes. According to (Braun & Clarke, 2006), a theme refers to something predominant about the data concerning the research question and signifies some patterned response or indications within the data group. Themes were generated deductively from existing theories and previous research works and combined with the researcher's knowledge of the topics. Once identified, the themes appear to uncover significant concepts by bringing together components or fragments of ideas.

From the generation of the overarching themes, sub-themes were pinpointed. For example, the main theme is 'challenges' was divided into 'financial constraint', 'managing customers' and 'people resistance' as sub-themes. The researcher used NVivo to help organise the data and generate themes and sub-themes. The sub-themes were developed in reference to the coding framework that is denoted as child nodes in the NVivo. The themes and sub-themes were reorganised until all of the data had been read through to ensure the credibility of the findings.

Finally, based on the findings from the data analysis, the researcher creates a questionnaire rooted in the critical concepts discovered from the qualitative research.

4.1.3 QUANTITATIVE DATA ANALYSIS METHOD

Quantitative data analysis for this research uses a software-assisted tool. This research uses the IBM SPSS Statistics Version 16 application. It is a powerful statistical software that is typically used in quantitative analysis in numerous works of research. Using an online survey coupled with the SPSS analytical tool has accelerated the data analysis process while avoiding human error compared to using manual methods such as a traditional paper-based survey. In addition, the software provides actionable insights from the data quickly through its advanced statistical capability.

Data collected from Google Forms online survey was exported to an SPSS file which did not require any sophisticated coding of responses and checking data for errors. Nonetheless, general data checking will be conducted to detect any error, whether it occurred at coding or data entry, and then correct it accordingly. The data will be coded automatically by Google Forms which assigns numerical values to enable statistical analysis. Cronbach's alpha calculation method is adopted to test its internal consistency and data reliability. The reliability test will be conducted on all three parts of the questionnaire; 1) understanding digital culture, 2) implementing digital culture, and 3) value creation from digital transformation.

Classifying the data types is an essential prior step in doing quantitative analysis. Based on Saunders et al., (2009), there are two distinct groups of quantitative data; 1) categorical and 2) numerical. In this research, the primary data type is categorical. Respondents are expected to rank on the importance of the particular elements of digital culture, how it describes their organisation's status and the impacts of the digital transformation on their business performance. This ranking is considered ordinal data, one form of categorical data. Spearman's rank correlation coefficient (Spearman's rho) or Kendall's rank correlation coefficient (Kendall's tau) will be calculated to assess the strength of the relationship between variables. All of the hypotheses outlined in the conceptual framework of this research will be validated through these techniques.

4.2 QUALITATIVE DATA ANALYSIS

4.2.1 PARTICIPANT PROFILE

The number of participants for the qualitative research is one company. Upon completion of the interviews, the respondents produced similar responses when comparing the interview results with the pilot interview. Furthermore, the findings from the interview are also aligned with the thematic analysis of the literature review. The data is considered to have reached data saturation when the findings are no longer producing new additional information (Charmaz, 2006; Hamp-Lyons & Morrison, 2007). Therefore, the number of participants for this study is considered adequate. The identified company is a car battery retailer with its headquarters in Selangor, Malaysia. Detail profile of the participant is as per *Section 3.6.1 – Participants in Qualitative Research*.

The company started as a supplier of car batteries for the B2B (business-to-business) market segment, supplying mainly to Original Equipment Manufacturers in the car manufacturing industry. However, it has evolved to cater to the B2C (business-to-customers) segment by offering battery delivery services directly to motorists on the road. As part of its digital transformation strategy, the company launched its mobile app and gig worker programme, including training for freelance technicians. As a result, it is becoming Malaysia's largest on-demand car battery delivery and warranty support. The company grew leaps and bounds by making customer experiences its absolute priority. Now, stranded drivers can reach them anytime, anywhere, hassle-free from multiple touchpoints 24 hours a day via app booking, web booking, hotline, WhatsApp, social media or even walk in straight to their shops. The company has about 199 employees and generates estimated annual revenue of about RM 25 million.

At an individual level, the interviewee is the CEO of the company. He is the founder and also the mastermind of the company's digital transformation strategy. In addition, he has 14 years of hands-on experience within the car service industry. Although the company previously conducted its business using traditional methods, it has now evolved by adopting digital technologies to grow its business, shaped by the CEO and supported by his leadership team. He graduated with a Bachelor's in Mechanical Engineering from a reputable university in Malaysia. His remarkable personality has led him to be awarded various accolades recognising his innovativeness as a successful entrepreneur.

4.2.2 THEMATIC ANALYSIS

The Qualitative Analysis started with the first iteration of open coding, which yielded 30 initial codes. The codes were then condensed into 15 categories during the second iteration of coding. Finally, three themes that sought to answer research questions emerged in the final iteration of coding. Data collected from the interview was analysed, focusing on understanding keywords and identifying distinctive patterns. There are three main themes; 1) Digital Culture Elements, 2) Value Creation from Digital Transformation, and 3) Implementing Digital Culture, following the research questions. Refer *Appendix 1* for the illustration of the hierarchy chart of the codes and themes. The following sections present the detailed findings from the qualitative research in accordance with the identified themes.

4.2.3 DIGITAL CULTURE ELEMENTS

Based on the thematic analysis, there are six sub-themes under the Digital Culture Elements theme, which are; 1) Digital Vision, 2) Innovation Culture, 3) Agile Way of Working, 4) Customer-centricity, 5) Collaboration and 6) Digital Leadership. The following sub-sections present the findings from the analysis.

4.2.3.1 DIGITAL VISION

Digital Vision is a statement describing the company's direction of its digital transformation journey, expressing its strategic intent, its purpose of digitalisation, and aligning with its business goals and strategy. It is a foundation that guides the organisation's digital transformation journey, establishing its future positioning. Various works of research revealed that companies accelerating their transition towards a more digitalised company must have a long-term digital vision and strategy. The participant valued the importance of digital vision as part of an essential element in their digital transformation journey, which quoted;

> *The heads know about what we want to achieve. It's just about, you know, being really clear about what we want and try to tell them this is something that is going to turn everything better. When we set the mind that we want to embark into digital, we start transmitting our vision. You need to really understand the fact that if we keep on communicating the vision, keep communicating the end game, I think somehow rather they will act accordingly. Not perfectly but they will act.*

The participants viewed digital vision as an important tool to steer the organisational direction in embarking on the right path of digital transformation. The finding is consistent with various research works indicating that digital transformation starts with a transformative vision and then engages the employees in materialising the vision (Westerman et al., 2014). It is notable from the participant's comments that leadership plays a vital role in communicating the vision. The participant also expressed that implementing the vision may not be easy. Nevertheless, it is considered a critical foundation in a digital transformation as it guides the digital transformation efforts.

Having clarity in digital transformation goals and vision also has been identified as one of the critical aspects of implementing the digital culture. It is related to the *Digital Vision* in the digital culture elements, which emphasises the ability of the company to have clarity, transparency and adequate process to communicate their digitalisation goals. When asked about, "*How do you play your role as a leader in driving the digital transformation?*" the participant highlighted the importance of being clear in their digitalisation objective, quoted that;

> *Being really clear about what we want and trying to tell them this is something that is going to turn everything better.*

The comment by the participant underscores the significance of having clarity in the digital transformation goals. Furthermore, communicating the goals and their benefits to the organisation is also essential to ensure cohesiveness in realising the goals. The finding is consistent with a study by Westerman et al., (2014) which indicates that engagement with employees to communicate the digital vision is a vital first step in a digital transformation journey. Doing so sets the expectation and creates a motivational force that pushes the organisation to strive towards that goal. Therefore, it can be concluded that having clarity in digital transformation is one of the critical aspects of implementing a digital culture.

4.2.3.2 INNOVATION CULTURE

Innovation culture refers to an organisational structure that nurtures unorthodox thinking by actively encouraging creativity and creating novelty solutions for new processes or products, resulting in greater efficacy and quality. The participant quoted that Innovation is an essential aspect of process improvement using technology by saying;

The digitalisation comes if the entrepreneur has in the back of their mind improvement mindset. Cause you know the improvement of mindset will start off manually. But once you do dive intro improvement, over time you know that you need to do digitalisation. You need to go into some sort of innovation to further improve processes. We need to build an ecosystem. So, technology is going to be pivotal here. We cannot really do anything without innovation technology. You need to go into some sort of innovation to further improve processes. So come back to that mindset. How do we improve? How do we make it sustainable? Because anyone can just do business nowadays. You know you have access to social media. You have products, you can promote, there you go, you can do business. But how do we do better than the rest? So you need to have Innovation behind it.

The participant indicated a very good interpretation of the concept. Furthermore, the understanding of the participant is consistent with previous works of research, which cited that innovation refers to changes and improvement by creating and implementing new processes or products, which result in greater efficacy and quality (Mulgan & Albury, 2003; Tohidi & Jabbari, 2012). Furthermore, the participant quoted that an innovation mindset helps the company create differentiation, giving them a competitive advantage. This finding is consistent with previous research that cited innovation culture as the key to SMEs' long-term competitiveness, as they may get a higher competitive advantage (Aspplund, 2003; Aksoy, 2017). These findings revealed that innovation culture is considered an essential element in a digital transformation.

4.2.3.3 AGILE WAY OF WORKING

The agile way of working refers to a style of working enabled by the organisational system that empowers team members and encourages collaboration to adapt and pivot faster than competitors towards achieving a competitive advantage. In this context, Hartl, (2019) posits that establishing tolerance towards failure is among the critical features of the agile way of working in a digital transformation. In this research, the participant also agreed on the importance of tolerating failure as part of their new way of working during digital transformation. The participant described the company's activities during their meetings with potential investors that reflected their ability to tolerate failure, quoted that;

So, they (i.e. the potential investor) like the idea. In fact, they rope us in their innovation lab. So, it's not really like the tender process because when we approach them based on

innovation, they know basically that you have what it takes. They want to really approach thing in Innovation, right? So we have that innovation mindset even though our platform is not ready. I was like, OK. Show them that we can be ready anytime because I will try it.

It is apparent from the participant comments that the words like "be ready" and "will try" reflected that they have tolerance towards failure. They are willing to deliver a "not-so-perfect" solution to their customers and willing to experiment with their approach. This finding is similar to previous research by Kane et al., (2017) cited that a digitally advanced company practised the agile way of working by cultivating a culture that embraces collaboration, risk-taking, and continuous learning. These findings revealed that taking risks and embracing experimentation in delivering solutions to customers, which is basically adopting an agile way of working, is a vital element in a digital transformation.

4.2.3.4 CUSTOMER CENTRICITY

Customer-centricity refers to employees' skill in putting customers at the centre of decisions by viewing from the customer's lens, which aims at providing and improving products or services that create a positive customer experience. In this research, the participant expressed that the idea for the company to embark on digital transformation was primarily driven by customers feedback, quoted that;

Back in 2018, I already realised that because the business cycle is about five years, I really like talking about the idea of trying to go on horizontal. Because I think the battery is one vertical. So from the feedback that we received on the market, not all the cases in which the customer calls us are battery problems. Sometimes that is the vehicle itself (i.e. alternator, the starter, gearbox). So make me wonder there is an opportunity for us to really link this customer to the workshop. So that the ideas were there, but how do we ensure that we can connect this customers to the workshop.

Subsequently, the company builds a mobile application that enables customers to request battery replacement services from this idea. This comment indicates that the company is operating with a customer-centricity mindset. Furthermore, the participant also quoted that the application also enabled them to enhance their customer experience;

The new app is all about crowdsourcing stocks. So it will be about making a better customer experience journey. So this is what is also always mentioned. This customer journey is the key to our success. Yeah, so with this model we believe the nearest customer will be assigned to the nearest stop in the nearest technician. So it will help in terms of our Service Level Agreement and other services.

These findings are consistent with previous research, which stated that focusing on solving the underlying problem through digital technology that the customer is facing allows the business to become more customer-centric and value-centric (Rogers, 2016). In these instances, embracing a customer-centricity mindset is considered an essential cultural element in a digital transformation.

4.2.3.5 COLLABORATION

Collaboration is among the critical features of an agile way of working that emphasises on collaborative working mentality whereby individuals work together for a shared purpose to achieve business goals. It is among the critical features of an agile way of working. Collaboration can happen within internal or external organisations. In this research, the participant elaborated on their experience in enhancing the mobile applications, which indicate their collaboration within their internal team, quoted that;

There are small steps that we have been doing for the past weeks in the company. The team had sleepless nights because we were enhancing the apps. So I really like the spirit. It is really, for me, amazingly done by our Chief Technology Officer. All departments do need to work together as a team. That kind of spirit, in which that we want everybody to do everything. Not just doing it for the sake of doing it, but they have to really do research. A lot of research and a lot of communication all around the departments and units. I think it's really about the ability to make sure everybody understands that they're not working silo; they are part of a bigger scheme.

The insights revealed from the participant comment is that the digital transformation effort does not solely rely on the IT department alone. The participant expressed that working together as a team is crucial in achieving digital transformation. In addition, the company collaborate across various departments and units, which indicates clarity in their respective roles in working together. This shared understanding is the starting point for a compelling digital transformation journey.

The management teams are the key drivers in creating a work culture that embraces teamwork and collaborative style, which is essential in their digitalisation journey. This finding is consistent with various works of research which underscore that having a collaborative culture is among the critical features of a digitally matured organisation (Kane et al., 2015; Lange et al., 2018; Parviainen et al., 2017). Therefore, these findings revealed that collaboration is considered an essential element in a digital transformation.

4.2.3.6 DIGITAL LEADERSHIP

Digital Leadership refers to a leadership style that is transformative, innovative, flexible, digital-savvy and agile, which drives the digital change in an organisation towards building a shared theory of success for digital transformation. It is crucial to transform the organisational culture towards a digital culture. The participant, who is also the company's CEO, portrayed a clear example of a leader with digital leadership that drives digital technology adoption in his company. The participant quoted;

> *Going digital needs positivity. If the person does not believe in the digital, then it is difficult. I think one of the challenges here is how do we as a leader trying to ensure that our staff we are able to connect the dots? You know, because one of the time they work in silo. they just see from the perspective of OK. Now you need to do a task, but they just do a task, but they don't really understand the fact why the task is being given and what is the result from the task. Normally it will involve another department. So that is the challenge as a leader. The ability of the managers to blend people together and really put them in the same direction is really important to me.*

The finding is coherent with a study by Von Kutzschenbach, (2017), stating that digital leadership is about building a shared theory of success for digital transformation. The participant expressed that the leaders must unify the organisation towards achieving the digital transformation goals. It is the role of the leaders to provide a holistic understanding to the employees for them to understand better the rationale of going digital. A robust digital leadership leads to greater efficiency and scalability in its digital transformation (Westerman et al., 2014). In these instances, digital leadership is considered a vital element of digital transformation.

4.2.4 VALUE CREATION FROM DIGITAL TRANSFORMATION

Digital transformation has enabled businesses to create value. Various research works highlighted the commonality in areas of value creation from digital transformation, which are; 1) financial improvement, 2) productivity improvement, and 3) customer satisfaction (Capgemini, 2011; McDonald & Jones, 2012; Westerman et al., 2014; International Data Corp, 2017; Microsoft & IDC Asia Pacific, 2018). Similar to this research, the three areas mentioned above are apparent. The following sub-sections present the findings from the analysis related to value creation from digital transformation.

4.2.4.1 FINANCIAL IMPROVEMENT

Financial performance refers to achieving a better commercial result, for example, increased revenue, decreased costs, and improved profit margin. It is a tangible benefit that leads to business sustainability and a faster growth rate. When asked about "*how much value creation was gained from the digital transformation*", the participant instantly highlighted his view on financial improvement gained from the digitalisation effort. The participant quoted;

> *In terms of financial improvement, I think easily double-digit. You know why? 'cause last time before this new app comes into the picture, our finance has to do the payment reconciliation for our gig worker manually. We have like active 100 of them. So imagine the time that they need to spend the hour. The man-hours that we have to invest for that simple process. Now once we embed all that automatically inside the app, It's like, second, it's life. So that is why you know 100% improvement is an understatement. I think, maybe more than that.*

Based on the comment from the participant, it is notable that the company gained a significant financial improvement from their digital transformation. The mobile application that the company has developed led to a reduction in man-hours which in turn led to cost reduction. Consequently, cost reduction resulted in increasing profit margin and improved cash flow. The participant also indicated that the company's annual revenue doubled from the state before digitalisation to after. The findings are aligned with various research, which also underscores that digitally advanced companies outperform in the financial aspect compared to their peers (McDonald & Jones, 2012; Westerman et al., 2014; Hemerling et al., 2018; Microsoft & IDC Asia Pacific, 2018). Therefore,

these findings revealed that financial improvement is one of the significant areas of value creation from digital transformation.

4.2.4.2 PRODUCTIVITY IMPROVEMENT

Productivity improvement is part of operational benefits resulting from digital transformation implementation. It is a tangible benefit that creates value for internal stakeholders, i.e., business owners, managers, and employees, leading to financial performance. McDonald & Jones, (2012) cited that operational benefits gained from digital transformation could subsequently improve margins or reduce pricing. In this research, the participant shared his company experience in achieving operational efficiency due to the creation of the mobile application, replacing the old conventional system in managing employees' job assignments. The participant quoted;

> *Basically, in terms of operational efficiency, imagine last time although we had a system, but the job assignments were mostly done through WhatsApp. So when this system comes in, auto-assignment comes into play. When auto-assignment comes to play, they detect the nearest customer to the nearest stop, and then they assign it to the nearest technician so easily. Efficiency in that sense in terms of order distribution, five-folds improvement definitely!*

As indicated by the participant, his company achieved a significant productivity improvement gained from its digitalisation effort. Indicatively, the participant stated that they achieved about five times in terms of efficiency improvement. This finding is consistent with several studies which suggest that digital transformation leads to an increase in the operational efficiency of an organisation (Capgemini, 2011; McDonald & Jones, 2012; Microsoft & IDC Asia Pacific, 2018). Furthermore, compared to data from previous research, the participant achievement far outperformed the average of 15% improvement in productivity year-on-year due to digital transformation, as reported in a study by Microsoft & IDC Asia Pacific (2018). These findings confirmed that productivity improvement is one of the significant areas of value creation from digital transformation.

4.2.4.3 CUSTOMER SATISFACTION

A personalised customer experience, improved customer engagement, enhanced customer services, and reinforced customer loyalty are among the vital attributes of value creation enabled

by digital transformation highlighted in the previous studies. However, in this research, the interest is more on the aspect of customer satisfaction. This selection is consistent with the previous research by Iriqat & Jaradat (2020), which revealed that there is a significant correlation between digital transformation and customer satisfaction. In this research, the participant shared the company's experience in utilising the mobile application to enhance customer experience journey, quoted that;

> *New app is about making a better customer experience journey. This customer journey is the key to our success. Through the apps, you will obviously try to understand the customer, where do they get to know about us. You also have the data in terms of the location, the address, the car, the type of car they're driving, and the battery they are selecting. We also have the data in terms of the insurance tax because we are able to do that. I think the low hanging fruit really on the fact that those customers which are going to expire in terms of the warranty then we can do retention. So that can be done automatically so that we don't lose the opportunity to ensure that the customers who buy from us will hopefully keep buying from us forever.*

Although the participant did not quantify the percentage of customer satisfaction from their digitalisation effort, their mobile application allows the company to increase customer satisfaction with their services, which leads to repetitive purchases. Furthermore, the company was able to increase customer retention, hence increasing brand loyalty. These findings are consistent with previous studies (Westerman et al., 2014; Reddy & Reinartz, 2017), highlighting that digital transformation enables businesses to deliver intangible benefits to customers, ultimately leading to customer satisfaction. In this case, customer satisfaction is considered one of the significant areas of value creation from digital transformation.

4.2.5 IMPLEMENTING DIGITAL CULTURE

Based on the analysis, there are three sub-themes under the Implementing Digital Culture theme, which are; 1) Standalone Unit for Digital Transformation, 2) Continuous Learning, and 3) Digital Talent. The following sub-sections present the findings from the analysis.

4.2.5.1 STANDALONE UNIT FOR DIGITAL TRANSFORMATION

Setting up a standalone unit to execute the digital transformation has been identified as another critical aspect of implementing digital culture. It refers to establishing a dedicated group of people to focus on implementing digital transformation. Having this team ensures effective implementation of the transformation agenda. In this research, the participant shared his experience in establishing a team. The CEO drives the commitment to his team by pushing them to implement the planned initiatives and be willing to experiment with their approaches, quoted that;

> *I assemble my team because this time around I have to be able to really identify, you know the right customers. But at the same time, the team that I have need to be able to install and commission at the site. So I was like asking all my team to sit down, brainstorm, let's do something. So just whatever stuff that we have, built a team and just do it. So you know you just go to the ground.*

As indicated by the participant, his company assembled several individuals to discuss their target market and how they can leverage digital technology to serve their customers better. This finding is consistent with a study by Priyono et al., (2020) which highlighted that a digitally driven company tends to assign short-term teams for its digitalisation effort in a structured manner with a project approach. These findings confirmed that setting up a standalone unit that is responsible for implementing digital transformation is one of the critical aspects of implementing a digital culture.

4.2.5.2 CONTINUOUS LEARNING

Continuous Learning refers to the commitment by the company towards consistent action in upskilling their employees, particularly in digital transformation. The importance of doing this is to continuously improve their business efficiency in line with the pace of technological advancement. In this research, the participant highlighted the importance of upskilling the employees, quoted that;

> *The company provided training, groomed and recruited them and then monitored them. But as we expand further throughout the nationwide expansion, we realise that this business model is not scalable. So basically, to grow, we need to crowdsource our*

technicians. Of course, our mobile technicians are important to us. They have the knowledge, they have experienced, and on-site experience with customers. That Is very important to us. So we kept them, we upskill them, in the sense that we wanted them to lead this crowdsourced technician. So we upskill them to become recruiters. We upskill them to become more capable in the automotive industry.

The participant reported that the company continuously provides training opportunities to upskill the employees. In this case, the company trained its employees to use the mobile application they have developed, the digital systems they have adopted, and other relevant upskilling requirements. Therefore, Continuous Learning is considered one of the critical aspects of implementing a digital culture.

4.2.5.3 DIGITAL TALENT

Digital Talent refers to employees who are competent with digital skills demanded by the industry. These people will drive the implementation of digital technology in their businesses. In this research, the participant highlighted the company's continuous effort to develop digital talent within their organisation, quoted that;

So first year doing manual. Second-year I am looking at, you know, having our own app. But building apps at that time was very expensive. I'm lucky because I think in this world you need to really like to trigger your intention to the universe, so you tend to attract the talent you know, so you know you bump to them. You talk to them. And that's why I think I managed to secure a few developers on a retainer basis. Being in this space, you have two choices; either we try to groom the current staff so that they try probably can improve, another option is to find new talent from the market which is very expensive.

The participant emphasised the importance of hiring the right digital talent in executing digital transformation. Therefore, the leader must have a clear propensity for digitalisation, portraying himself as a digital leader. The digital leader will become a magnet for digital talent by doing so. This finding is consistent with a study by Hemerling et al., (2018) which also highlighted the importance of a digital leader in attracting digital talent as part of a vital aspect of developing digital culture. These findings confirmed that Digital Talent is considered one of the critical aspects of implementing a digital culture.

4.2.6 SUMMARY OF QUALITATIVE RESEARCH

Based on the qualitative data analysis as discussed in the previous sections, it can be concluded that there are 15 sub-themes which then can be categorised into three main themes, as shown in *Table 4.3* below.

Table 4. 3: Summary of Thematic Analysis for the Qualitative Research

No	Sub-themes	Themes
1	Digital Vision	Digital Culture Elements
2	Innovation Culture	
3	Agile Way of Working	
4	Customer-centricity	
5	Collaboration	
6	Digital Leadership	
7	Financial Improvement	Value Creation from Digital Transformation
8	Productivity Improvement	
9	Customer Satisfaction	
10	Standalone Unit for Digital Transformation	Implementing Digital Culture
11	Continuous Learning	
12	Digital Talent	

In the exploratory sequential mixed method design, the findings from the qualitative research become an input for the quantitative research. Hence, these sub-themes formed key topics in developing a questionnaire for the quantitative research. These themes also act as vital variables that will be tested through quantitative research. The rationale of quantitative research is to provide a generalisation of the concept by measuring its validity and rigour in a broader context of the population. The following sections will discuss the quantitative data analysis involving Malaysian SMEs.

4.3 QUANTITATIVE DATA ANALYSIS

4.3.1 PARTICIPANT PROFILE

A total of 384 companies were selected through simple random sampling, where the sample of participants was obtained through several online databases. The companies involved are mainly located in Selangor and Kuala Lumpur. Business owners from the micro-enterprises and small and medium-sized enterprises were involved in the quantitative research. As business owners, they brought individual perspectives as the company leaders and views from their organisational state of digital culture.

4.3.2 QUESTIONNAIRE RESPONSE RATE

A total of 384 questionnaires were administered through an online survey. This sample size represents the population of SMEs in Malaysia, which is about 907,065, at a 5% margin of error and 95% confidence level (Saunders et al., 2019). As shown in *Table 4.4*, a total of 315, representing 82% of the total, were returned, indicating that more than half of the total sample has responded.

Table 4. 4: Questionnaire Response Rate

	Number of questionnaires	**Proportion**
Returned	315	82%
Not Returned	69	18%
Total Administered	**384**	**100%**

An analysis of surveys published in respected journals by Baruch & Holtom, (2008) indicates that average response rates of 52.7% with a standard deviation of 21.2% are considered an acceptable minimum response rate for organisational research. This is also supported by other research works, which conclude that quality control in questionnaire compilation is attained if the response rate is more than half of the sample (Sekaran & Bougie, 2016; McManus et al., 2017). Therefore, this research's response rate is deemed acceptable in these instances.

The questionnaire was administered electronically using the Google Forms online survey and was disseminated through e-mail. The e-mail lists were obtained through several online databases, such as the Ministry of Entrepreneur Development and Cooperatives of Malaysia, SME Corporation

Malaysia, and Malaysia SME Business Directory. To achieve a high response rate, the researcher sent several reminder e-mails for the participants to revert with their responses, but 69 questionnaires or 18 % of the total, did not respond. This is probably due to the invalidity of their e-mail, or the SMEs changed their e-mail addresses indicating the databases that captured the SMEs' e-mail addresses were outdated.

4.3.3 DATA RELIABILITY

Reliability is concerned with how the research methods and instruments produce stable and consistent results. Cronbach's alpha calculation method is adopted to test this research's internal consistency and data reliability. A generally accepted rule is that Cronbach's Alpha index of 0.6 to 0.7 indicates an acceptable level of reliability, and 0.8 or greater is a very good level (Sekaran & Bougie, 2016; McManus et al., 2017). However, according to Ursachi et al., (2015), Cronbach's Alpha index of higher than 0.95 is not necessarily good since it may indicate redundancy.

Table 4. 5: Reliability Statistics

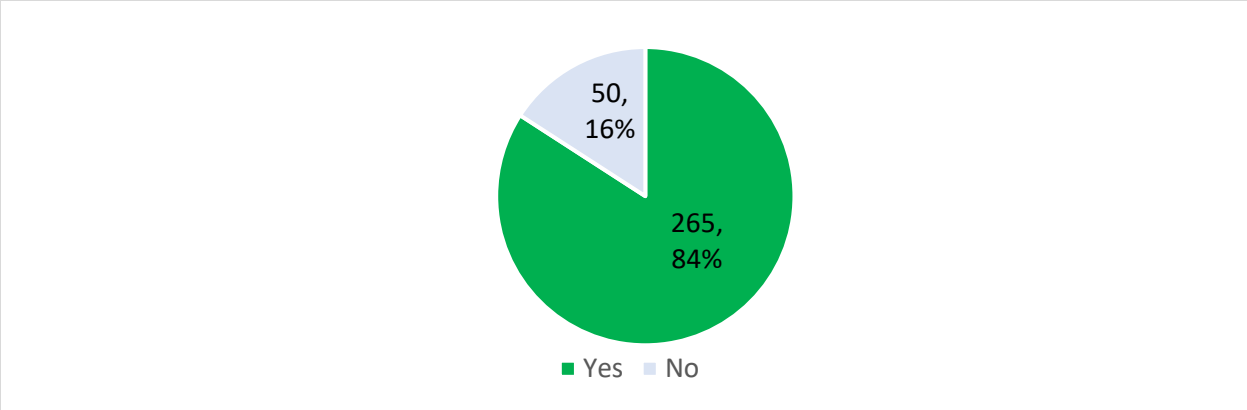
Item description	Cronbach's Alpha	N of Items	Comments
1. Understanding digital culture	0.816	6	Good level
2. Implementing digital culture	0.886	11	Good level
3. Value creation from digital transformation	0.910	3	Good level
4. Overall	0.900	20	Good level

For this research, the test covers all three core parts or thematic areas of the questionnaire; 1) understanding digital culture, 2) implementing digital culture, and 3) value creation from digital transformation. Based on the analysis, the Cronbach Alpha index for the first part, i.e. understanding digital culture, is 0.816, the second part, i.e. implementing digital culture, is 0.886, and the third part, i.e. value creation from digital transformation, is 0.910. Overall, Cronbach's Alpha index is 0.900, which is considered a good level. The above analysis shows that the Cronbach Alpha is above the acceptable level of 0.6 to 0.7, hence concluding the data to be reliable and can be used to analyse the variables.

4.3.4 DESCRIPTIVE STATISTICS

4.3.4.1 DIGITAL TRANSFORMATION ADOPTION

Figure 4. 1: Percentage of Digital Transformation Adoption by SMEs in Malaysia

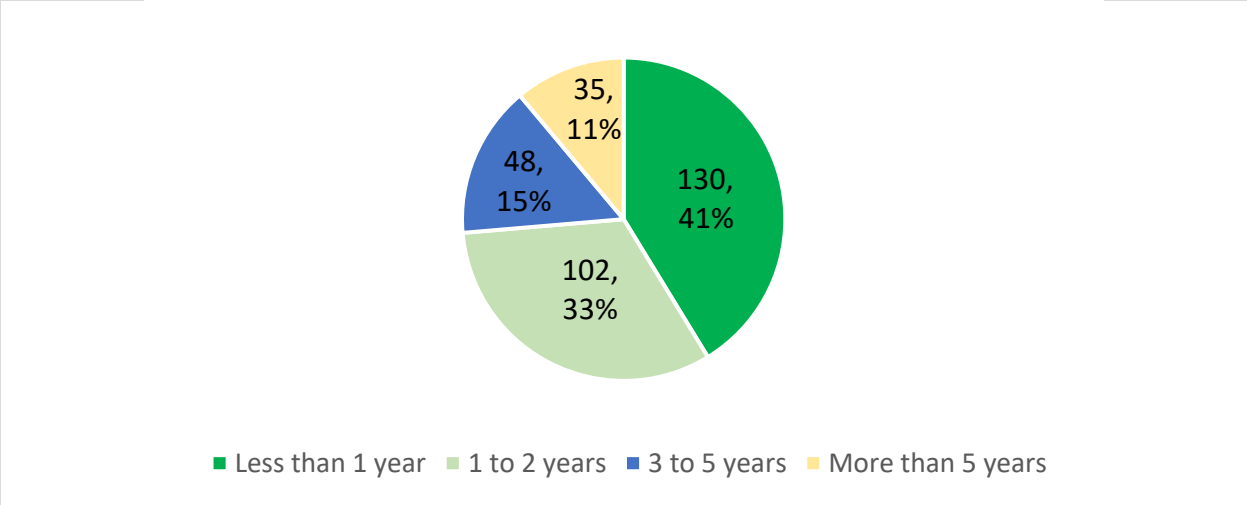


Based on the analysis, about 265 respondents, or 84% of the total, have adopted digital technology (such as e-commerce, i.e. Shopee/ Lazada, or process automation system) to improve their business performance. While the remaining of them, which is about 50 respondents or 16% of the total, indicate that they still did not adopt any technology in their business. The result is consistent with the survey conducted several years ago by SME Corporation Malaysia, (2018), which also revealed that about 20% of Malaysian SMEs are still cautious in investing in ICT technology. The insight is that from 2018 to 2021, the trend remains the same, where most SMEs in Malaysia have been adopting digital transformation in their business.

4.3.4.2 DURATION OF DIGITAL TRANSFORMATION

Although most SMEs in Malaysia have been adopting digital transformation in their business, the majority of them embarked on digital transformation in less than five years. Based on the survey, 130 respondents, or 41% of the total, indicate that they have been adopting digital transformation in less than one year.

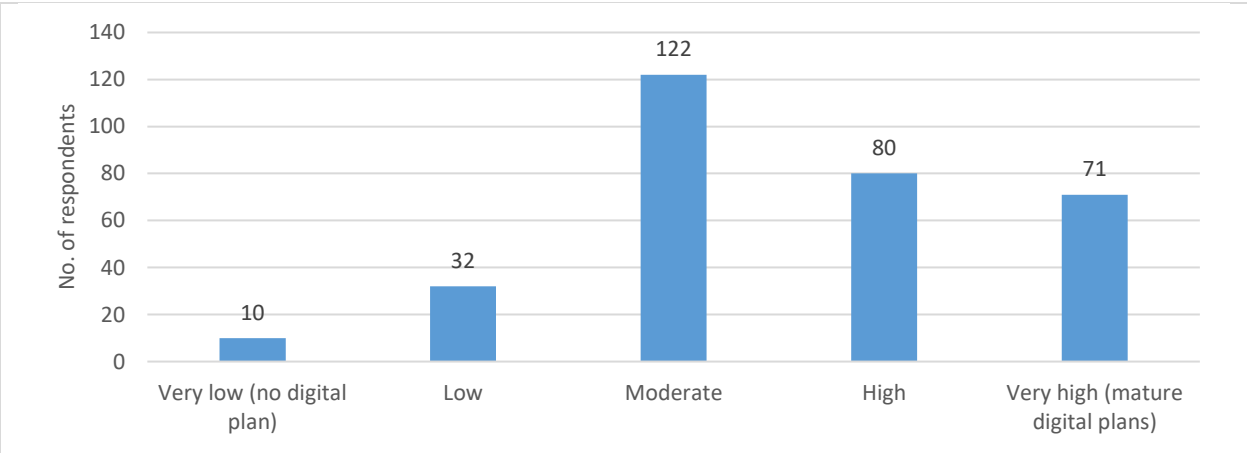
Figure 4. 2: Duration of Digital Transformation Adoption by SMEs in Malaysia



About one-third of them adopted digital transformation within one to two years. Only about 48 of the respondents, or about 11% of the total, indicate that they have been using digital technology for about three to five years. The insight is that digital transformation is still a new thing for SMEs in Malaysia, and most of them are still exploring the need and benefits of adopting digital transformation. Probably, most of them are taking a wait-and-see approach to find out how others are doing it before they adopt it by themselves.

4.3.4.3 LEVEL OF DIGITAL TRANSFORMATION ADOPTION

Figure 4. 3: Level of Digital Transformation Adoption by the Malaysian SMEs



By taking a deeper view of the level of digital adoption by SMEs in Malaysia, it is apparent that most of them are still at a moderate level of adoption, as indicated by a total of 122 respondents, or 39% of the total. The moderate level of adoption refers to companies that are gradually adopting digital transformation and planning on it. The other half of the respondents indicated that they are at a 'high' and 'very high' level of digital transformation adoption, with 80 respondents (25%) and 71 respondents (23%), respectively. The high level of adoption refers to their ability to have a mature digital transformation plan, and they implemented the digitalisation initiatives. On the other hand, only 13% of the total respondents indicated that they have a low level of adoption.

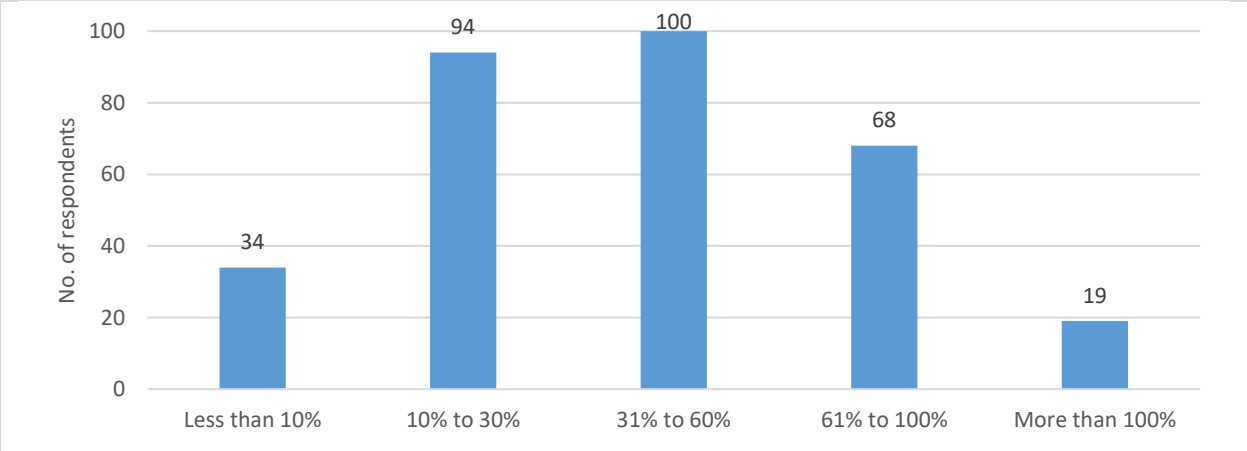
This finding is consistent with a study by Dell Technologies, (2018) which also revealed the same adoption trend for the companies in Malaysia. In addition, research by SME Corporation Malaysia, (2018) also revealed that 50% of Malaysian SMEs have a high level of digital transformation adoption, categorised as 'ICT Leaders' in their report. The level of digital transformation adoption represents the rate of adoption by SMEs in Malaysia. The data provides a clear view of the speed of adoption by SMEs. Hence, this data will be used as the primary dependent variable to validate the hypothesis in this research.

4.3.4.4 VALUE CREATION FROM DIGITAL TRANSFORMATION

This research also investigates the value creation gained from digital transformation. The focus is to understand the impact of digital transformation on SMEs by comparing the degree of improvement before and after the transformation. Three key areas of value creation that will be highlighted are; 1) financial improvement, 2) productivity improvement, and 3) customer satisfaction.

a) <u>Financial Improvement</u>

Figure 4. 4: Revenue Gained from the Digital Transformation



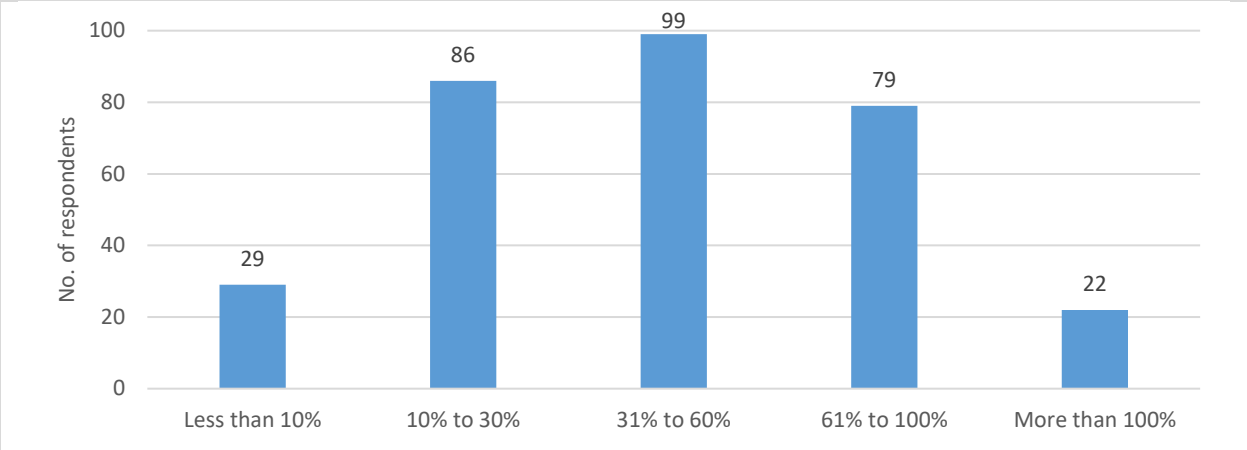
When asked about "*how much improvement in revenue gained from the digital transformation compared to before that?*", the majority of the SMEs (i.e. 100 respondents or 32% of total) indicated that digital transformation has led to an improvement of about 31% to 60% of their financial performance, as shown in Table 5.4 above. About 87 respondents, or 28% of total respondents, indicated more than 61% improvement. In addition, some of the SMEs (i.e. 19 respondents or 6% of the total) highlighted that they had gained more than 100% improvements in revenue due to digital transformation.

b) <u>Productivity Improvement</u>

In terms of productivity improvement, most SMEs (99 respondents or 31% of the total) indicated that digital transformation had improved about 31% to 60% of their productivity, as shown in Table 5.5 below. On the other hand, about 86 respondents, or about 27% of total respondents, indicated that they had gained about 10% to 30% improvement in productivity. An interesting

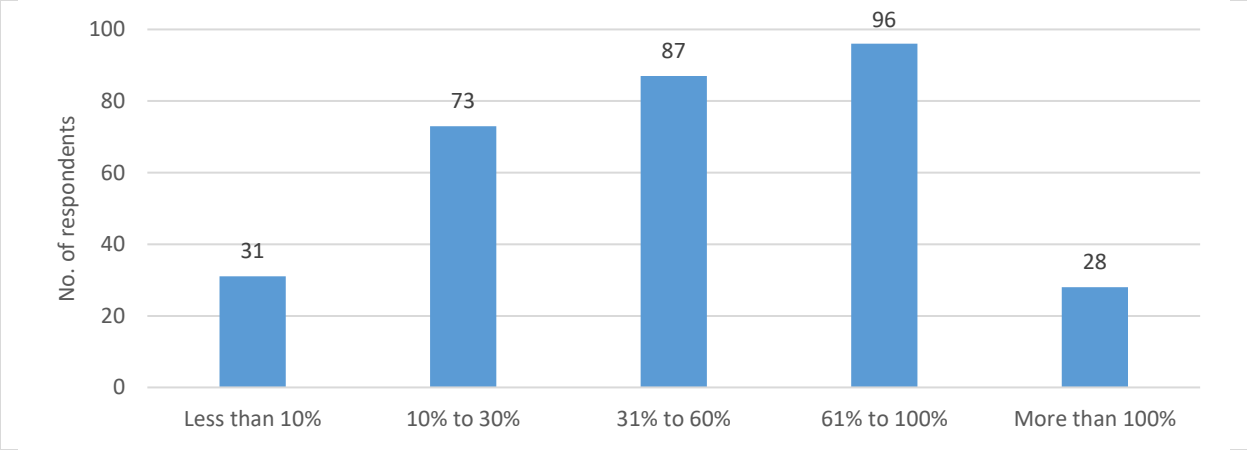
finding to highlight is that about one-third of the SMEs (i.e. 101 respondents or 32% of the total) indicated that digital transformation had improved more than 61% of their productivity.

Figure 4. 5: Productivity Improvement from the Digital Transformation



c) Customer Satisfaction

Figure 4. 6: Customer Satisfaction from the Digital Transformation

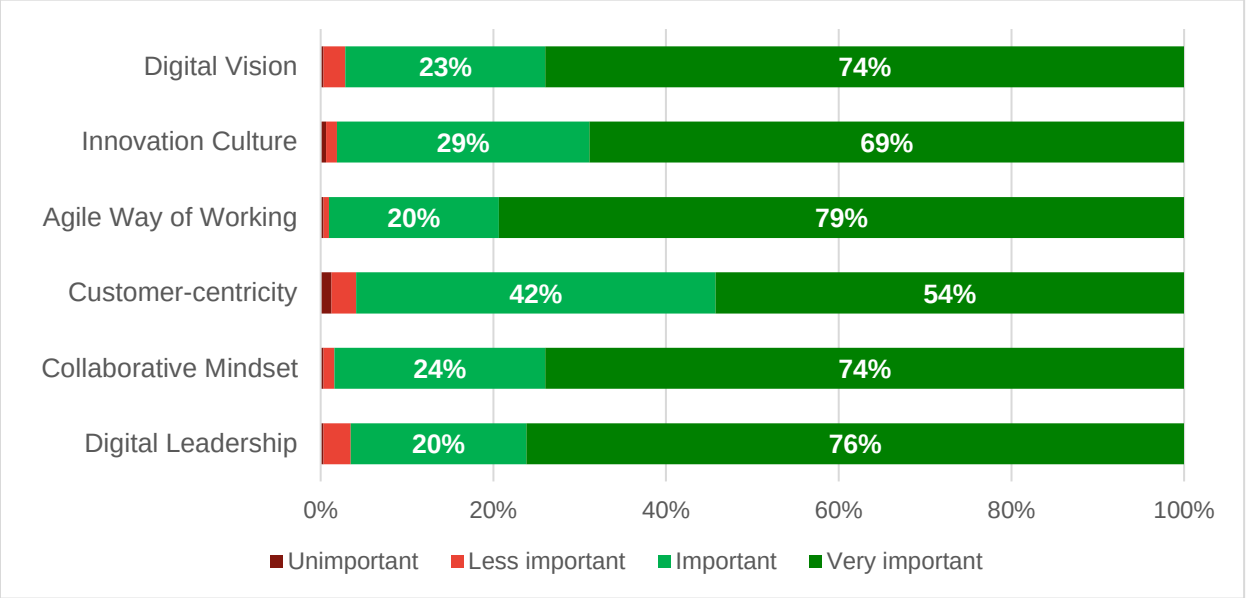


When asked about "*how much improvement in customer satisfaction from the digital transformation?*" the finding from the survey shows that digital transformation has improved more than 61% of customer satisfaction in most SMEs (i.e. 124 respondents or 39% of total). Some of the SMEs achieved more than 100% improvement in customer satisfaction (i.e. 28 respondents or 9% of the total). About 87 respondents, or 28% of the total, indicated an improvement of about 31% to 60% in customer satisfaction.

4.3.5 HYPOTHESIS VALIDATION

4.3.5.1 DIGITAL CULTURE ELEMENTS

Figure 4. 7: Digital Culture Elements that are of Importance to the SMEs



The digital culture elements identified from the qualitative research were validated through the survey to measure their importance to SMEs. Based on the analysis, the majority of SMEs agreed that the identified digital culture elements are important to them, particularly in undergoing digital transformation. On average, about 98% of the SMEs agreed that the digital culture elements, i.e. Digital Vision, Innovation Culture, Agile Way of Working, Customer-centricity, Collaboration, and Digital Leadership, are vital to them. Furthermore, almost all (99%) of the SMEs agreed that having an Agile Way of Working or basically a tolerance towards failure in the digital transformation is paramount.

From the findings, it can be concluded that the digital culture elements that have been identified from the qualitative research are validated through quantitative research and considered relevant to the SME population sample. Although initially, the elements surfaced from qualitative research by interviewing one company, it is apparent that the elements are also valid and relevant from the quantitative research via survey. Therefore, these digital culture elements will become the key variables that will be tested further to assess their relationship with value creation in the following sub-section.

4.3.5.2 VALUE CREATION FROM DIGITAL TRANSFORMATION

This research analysed the relationship between the digital culture elements, i.e. Digital Vision, Innovation Culture, Agile Way of Working, Customer-centricity, Collaboration, and Digital Leadership, with the SME's business performance, particularly in achieving financial improvement, productivity improvement and customer satisfaction. Kendall's rank correlation coefficient, i.e. Kendall's tau, will be calculated to assess the strength of the relationship between variables. According to Magiya, J. (2019), Kendall's tau is suitable for small-sized samples, aligned with this research which has a small sample size.

Botsch, R. E. (2011) proposed a guideline to describe the strength of a correlation relationship. A correlation coefficient of less than + or - 0.10 is considered a very weak correlation. A coefficient of + or -0.10 to 0.19 is weak. It is considered moderate if the correlation coefficient is + or - 0.20 to 0.29. A correlation coefficient of + or - 0.30 or above is considered strong. A coefficient of 1 indicates a perfect positive monotonous relation. The following sub-sections provide details of the findings for each digital culture element.

Digital Vision

Kendall's tau analysis was conducted to evaluate the following Hypothesis (H) :

H7. ***Digital Vision*** *has a positive association with 1) financial improvement, 2) productivity improvement, and 3) customer satisfaction of the SME.*

Table 4. 6: Correlation Analysis for Digital Vision and Financial Improvement, Productivity Improvement and Customer Satisfaction

Importance of Digital Vision	Financial Improvement	Productivity Improvement	Customer satisfaction
Kendall's tau-b Correlation Coefficient	0.249	0.252	0.267
Sig. (2-tailed)	.000	.000	.000
N	315	315	315

Based on the analysis, Digital Vision was found to be positively correlated with; 1) financial improvement, 2) productivity improvement, and 3) customer satisfaction of the SME. In terms of Financial Improvement, the correlation coefficient is 0.249, which is considered a moderate positive correlation. Similar to Productivity Improvement and Customer Satisfaction, the correlation is at 0.252 and 0.267, respectively, which is also indicated a positive correlation to both

variables. Therefore, it is reasonable to conclude from the result of the analysis that the H1 hypothesis is validated.

Innovation Culture

Kendall's tau analysis was conducted to evaluate the following Hypothesis (H) :

H8. ***Innovation Culture*** *has a positive association with 1) financial improvement, 2) productivity improvement, and 3) customer satisfaction of the SME.*

Table 4. 7: Correlation Analysis for Innovation Culture and Financial Improvement, Productivity Improvement and Customer Satisfaction

Importance of Innovation Culture	Financial Improvement	Productivity Improvement	Customer satisfaction
Kendall's tau-b Correlation Coefficient	0.226	0.226	0.203
Sig. (2-tailed)	.000	.000	.000
N	315	315	315

The results revealed that Innovation Culture positively correlates with; 1) financial improvement, 2) productivity improvement, and 3) customer satisfaction. The correlation coefficient for Financial Improvement and Productivity Improvement is similar at 0.226, which indicates a moderate level of positive correlation. For Customer Satisfaction, the correlation is also at a moderate level, standing at 0.203. Based on the result, it is reasonable to conclude that the H2 hypothesis is validated.

Agile Way of Working

Kendall's tau analysis was conducted to evaluate the following Hypothesis (H) :

H9. ***Agile Way of Working*** *has a positive association with 1) financial improvement, 2) productivity improvement, and 3) customer satisfaction of the SME.*

Table 4. 8: Correlation Analysis for Agile Way of Working and Financial Improvement, Productivity Improvement and Customer Satisfaction

Importance of Agile Way of Working	Financial Improvement	Productivity Improvement	Customer satisfaction
Kendall's tau-b Correlation Coefficient	0.242	0.241	0.202
Sig. (2-tailed)	.000	.000	.000
N	315	315	315

Based on the analysis, the Agile Way of Working has a positive association with; 1) financial improvement, 2) productivity improvement, and 3) customer satisfaction. The correlation for Financial Improvement and Productivity Improvement is about the same: about 0.242 and 0.241, respectively. For Customer Satisfaction, the correlation is at 0.202. All variables that have been mentioned proved to have a moderate level of positive correlation with the Agile Way of Working. Therefore, as the analysis indicates, it is reasonable to conclude that the H3 hypothesis is validated.

Customer-centricity

Kendall's tau analysis was conducted to evaluate the following Hypothesis (H) :

H10. ***Customer-centricity*** *has a positive association with 1) financial improvement, 2) productivity improvement, and 3) customer satisfaction of the SME.*

Table 4. 9: Correlation Analysis for Customer-centricity and Financial Improvement, Productivity Improvement and Customer Satisfaction

Importance of Customer-centricity	**Financial Improvement**	**Productivity Improvement**	**Customer satisfaction**
Kendall's tau-b Correlation Coefficient	0.209	0.185	0.199
Sig. (2-tailed)	.000	.000	.000
N	315	315	315

Based on the analysis, Customer-centricity was found to be positively correlated with; 1) financial improvement, 2) productivity improvement. In terms of Financial Improvement, the correlation is at 0.209, which is considered moderate. An interesting finding is that although the variable customer-centricity has a positive correlation with Productivity Improvement and Customer Satisfaction, both variables have a statistically weak correlation coefficient with a correlation of 0.185 and 0.199, respectively. Nevertheless, it is reasonable to conclude that the H4 hypothesis is validated.

Collaboration

Kendall's tau analysis was conducted to evaluate the following Hypothesis (H) :

H11. ***Collaboration*** *has a positive association with 1) financial improvement, 2) productivity improvement, and 3) customer satisfaction of the SME.*

Table 4. 10: Correlation Analysis for Collaboration and Financial Improvement, Productivity Improvement and Customer Satisfaction

Importance of Collaboration	Financial Improvement	Productivity Improvement	Customer satisfaction
Kendall's tau-b Correlation Coefficient	0.170	0.210	0.149
Sig. (2-tailed)	.001	.000	.003
N	315	315	315

The results revealed that Collaboration has a positive association with; 1) financial improvement, 2) productivity improvement. Collaboration influences productivity improvement, as indicated by a moderate level of correlation at 0.210. Although Collaboration positively affects Financial Improvement and Customer Satisfaction, both variables have a statistically weak correlation coefficient of 0.170 and 0.149, respectively. Hence, it is reasonable to conclude that the H5 hypothesis is validated.

Digital Leadership

Kendall's tau analysis was conducted to evaluate the following Hypothesis (H) :

H12. ***Digital Leadership*** *has a positive association with 1) financial improvement, 2) productivity improvement, and 3) customer satisfaction of the SME.*

Table 4. 11: Correlation Analysis for Digital Leadership and Financial Improvement, Productivity Improvement and Customer Satisfaction

Importance of Digital Leadership	Financial Improvement	Productivity Improvement	Customer satisfaction
Kendall's tau-b Correlation Coefficient	0.178	0.203	0.232
Sig. (2-tailed)	.000	.000	.000
N	315	315	315

Based on the analysis, Digital Leadership was found to be positively correlated with; 1) financial improvement, 2) productivity improvement. In terms of Productivity Improvement, the correlation is at 0.203, which is considered moderate. It also affects customer satisfaction with a positive

correlation of 0.232, indicating a moderate correlation level. Although Digital Leadership positively affects Financial Improvement, the variable has a statistically weak correlation coefficient of 0.178. Therefore, it is reasonable to conclude that the H6 hypothesis is validated.

4.3.5.3 IMPLEMENTING DIGITAL CULTURE

The identified digital culture elements were also tested to evaluate how these elements affect digital transformation adoption. The digital culture elements, i.e. Digital Vision, Innovation Culture, Agile Way of Working, Customer-centricity, Collaboration, and Digital Leadership, will become the primary independent variables. The SMEs' level of digital transformation will become the dependent variable. The idea is to evaluate and predict digital culture variables that influence digital transformation adoption.

The Theory of Planned Behaviour (TPB) was used as a theoretical framework that guides the assessment. Hence, there will be three perspectives in the assessment, aligned with the TPB constructs, which are 1) Attitude towards the behaviour or primarily the personal views, 2) Subjective Norm or referred to the organisational view, and 3) Perceived Behavioural Control or referred to the organisational capability to control the variables. Kendall's tau analysis was conducted to validate the following Hypothesis (H) :

Attitude towards the behaviour

H1. ***Attitude towards Digital Vision*** *has a positive relationship with behavioural intention to adopt digital transformation*

H2. ***Attitude towards Innovation Culture*** *has a positive relationship with behavioural intention to adopt digital transformation*

H3. ***Attitude towards Agile Way of Working*** *has a positive relationship with behavioural intention to adopt digital transformation*

H4. ***Attitude towards Customer-centricity*** *has a positive relationship with behavioural intention to adopt digital transformation*

H5. ***Attitude towards Collaboration*** *has a positive relationship with behavioural intention to adopt digital transformation*

H6. ***Attitude towards Digital Leadership*** *has a positive relationship with behavioural intention to adopt digital transformation*

Subjective Norm

H7. ***Subjective norm on Digital Vision*** *has a positive relationship with behavioural intention to adopt digital transformation*

H8. ***Subjective norm on Innovation Culture*** *has a positive relationship with behavioural intention to adopt digital transformation*

H9. ***Subjective norm on Agile Way of Working*** *has a positive relationship with behavioural intention to adopt digital transformation*

H10. ***Subjective norm on Customer-centricity*** *has a positive relationship with behavioural intention to adopt digital transformation*

H11. ***Subjective norm on Collaboration*** *has a positive relationship with behavioural intention to adopt digital transformation*

H12. ***Subjective norm on Digital Leadership*** *has a positive relationship with behavioural intention to adopt digital transformation*

Perceived Behavioural Control

H13. ***Standalone Unit for Digital Transformation*** *has a positive relationship with behavioural intention to adopt digital transformation*

H14. ***Continuous Learning*** *has a positive relationship with behavioural intention to adopt digital transformation*

H15. ***Digital Talent*** *has a positive relationship with behavioural intention to adopt digital transformation*

The results of the analysis are summarised in *Table 4.12* below. Each of the variable's correlation coefficients was then assigned with a colour code following the general guide in determining the relative strength of the relation using Kendal's tau analysis. The colour code provides a better illustration of the findings and facilitates uncovering insights.

Table 4.12: Summary of Correlation Analysis using Kendall's tau to evaluate the Relationship of Digital Culture Variables with Attitude, Subjective Norm and Perceived Behavioural Control

No	Digital Culture Variables	Kendall's tau-b coefficients Digital Transformation Adoption
Attitude towards		
H1	Digital Vision	0.273
H2	Innovation Culture	0.131
H3	Agile Way of Working	0.105
H4	Customer-centricity	0.200
H5	Collaboration	0.166
H6	Digital Leadership	0.184
Subjective Norm on		
H7	Digital Vision	0.456
H8	Innovation Culture	0.240
H9	Agile Way of Working	0.227
H10	Customer-centricity	0.154
H11	Collaboration	0.266
H12	Digital Leadership	0.380
Perceived Behavioural Control		
H13	Standalone Unit for Digital Transformation	0.325
H14	Continuous Learning	0.224
H15	Digital Talent	0.310
Legend (color code):		
Strong correlation (>0.3) | Moderate correlation (0.2 - 0.29) | Weak correlation (0.1 - 0.19)		

Based on the analysis, it is notable that all of the correlation coefficients are positive. Hence it can be concluded that all hypotheses as stated above, i.e. H1 to H15, are validated and accepted. A positive correlation indicates that all of the stated digital culture variables move in tandem with digital transformation adoption. In this instance, whenever SMEs strengthen their digital culture or improve their organisational transformation in this aspect, there is a higher rate of digital transformation adoption.

From the perspective of the *Attitude towards the behaviour* or primarily the personal views of the respondents, some of the digital culture variables have a statistically weak correlation coefficient. From the analysis, the correlation coefficient for Innovation Culture (0.131), Agile Way of

Working (0.105), Collaboration (0.166), and Digital Leadership (0.184) are all in the range of 0.1 to 0.19, which is considered weak. However, the correlation coefficient for Digital Vision (0.273) and Customer-centricity (0.200) is at a moderate level. At the individual level, the SMEs believe that these digital culture variables are essential and positively affect their digital transformation.

Another perspective is to view the relationship of the variables from the lens of the *Subjective Norm* or mainly the organisational view. Compared to the perspective of personal views, the dichotomy in this perspective is to gather the respondent's view of the digital culture variables, mainly how it describes their organisation's behaviour in implementing digital transformation. Several interesting findings were discovered by analysing from this perspective. For example, most of the variables indicated a moderate correlation coefficient, i.e. Subjective norm on Innovation Culture (0.240), Subjective norm on Agile Way of Working (0.227), and Subjective norm on Collaboration (0.266). Only the variable Subjective norm on Customer-centricity has a weak correlation coefficient at 0.154. Nonetheless, all of the variables have positive associations.

An interesting highlight from the analysis is that the correlation coefficient for Subjective norm on Digital Vision (0.456), which is related to the digital culture elements of Digital Vision, is above 0.3, which indicates a strong correlation. Similar to the variables of Subjective norm on Digital Leadership (0.380), which is related to Digital Leadership of the digital culture elements. Notably, the respondents indicated that these two variables are significant elements that predominantly exist in their organisations, leading to higher digital transformation adoption. The insights from these findings are that having a strong leader who leads the digital transformation, coupled with a clear digital vision, will significantly increase SMEs' rate of digital transformation adoption.

Another variable is *Perceived Behavioural Control* which refers to the organisational capability to control the planned behaviour. The distinction in this perspective is to assess whether organisations can facilitate or impede the implementation of digital transformation. Based on the analysis, the correlation coefficient for all of the Continuous Learning variables has a statistically moderate positive correlation which is 0.224. Remarkable findings to highlight is that the variable Standalone Unit for Digital Transformation and Digital Talent has a strong correlation with a coefficient of 0.325 and 0.310, respectively. The insight uncovered from this analysis is that SMEs could accelerate their digital transformation adoption by having a standalone unit dedicated to realising the digitalisation projects, combined with the availability of digital talent.

4.4 DATA ANALYSIS DISCUSSION

Table 4.13 below provides justification for the alignment of the research findings obtained from this research with the research questions and objectives.

Table 4.13: Alignment of the Research Objectives and Findings

Research aims: To investigate elements of organisational culture that drive digital transformation for the Malaysian SMEs in the selected states, particularly in the retail sector, and subsequently to develop a Culture Transformation framework to ensure effective implementation of Digital Transformation for the SME.	
Research Question 1: What are the key elements of digital culture that drive digital transformation for SMEs?	
Research Objective 1:	**Research Findings:**
To determine the key elements of digital culture that drive digital transformation for the SME.	1. This Phase 1 Qualitative Research revealed six key elements of digital culture that drive digital transformation for the SME in selected states of Malaysia are; 1) Digital Vision, 2) Innovation Culture, 3) Agile way of working, 4) Customer-centricity, 5) Collaboration and 6) Digital Leadership. 2. Phase 2 Quantitative Research justified that, on average, 98% of the SMEs agreed that the digital culture elements, i.e. Digital Vision, Innovation Culture, Agile Way of Working, Customer-centricity, Collaboration, and Digital Leadership, are vital to them. The results validated the elements of Digital Culture discovered from the Qualitative research and considered relevant to the SME population sample. 3. The findings from both Qualitative and Quantitative research concluded that the digital culture elements that drive digital transformation for the SME are: 1) Digital Vision, 2) Innovation Culture, 3) Agile way of working, 4) Customer-centricity, 5) Collaboration and 6) Digital Leadership.

Research Question 2: What is the relationship between digital culture elements and value creation through digital transformation for the SME?	
Research Objective 2:	**Research Findings:**
To analyse the relationship between digital culture elements and value creation through digital transformation for the SME.	1. From the Qualitative Data Analysis, three core areas of value creation from digital transformation were revealed, which are; 1) financial improvement, 2) productivity improvement, and 3) customer satisfaction. 2. From the Quantitative Data Analysis, all hypotheses that have been identified were accepted as there is a positive correlation between the digital culture elements and the core areas of value creation from digital transformation. The finding justified that digital transformation improves SMEs' financial, productivity, and customer satisfaction. 3. In conclusion, from this research, it is proven that there is a positive correlation between the digital culture elements and three core areas of value creation, which are: 1) financial performance, 2) productivity improvement and 3) customer satisfaction.
Research Question 3: How does SME implement digital culture transformation to achieve an effective digital transformation?	
Research Objective 3:	**Research Findings:**
To understand how SMEs implement digital culture transformation to achieve an effective digital transformation.	1. From the Qualitative Data Analysis, based on analysis, there are three sub-themes under the Implementing Digital Culture theme, which are; 1) Standalone Unit for Digital Transformation, 2) Continuous Learning, and 3) Digital Talent. These three variables are critical aspects for the SME to implement Digital Culture. 2. In the Quantitative Data Analysis, hypotheses were generated and tested to justify whether the critical aspects of the implementation of Digital Culture are relevant and have

	a positive relationship with Digital Transformation. Based on the Quantitative analysis, it is notable that all of the correlation coefficients are positive. Hence it can be concluded that all hypotheses, i.e. H1 to H15, are validated and accepted. A positive correlation indicates that all of the stated variables in implementing Digital Culture move in tandem with the Digital Transformation adoption. 3. In conclusion, from this research, it is understood that there are three critical aspects for SMEs to implement digital culture transformation: 1) Standalone Unit for Digital Transformation, 2) Continuous Learning, and 3) Digital Talent.

4.5 CHAPTER SUMMARY

This chapter has presented the data analysis, including results from different tests of this exploratory sequential mixed-methods study. The data analysis has two parts: 1) qualitative and 2) quantitative. The qualitative data analysis section starts with the introduction of the interview participant. Subsequently, results from the thematic analysis are discussed. From the thematic analysis, three main themes have been identified, namely; 1) digital culture elements, 2) value creation from digital transformation, and 3) implementation of digital culture. These themes are all aligned with the research questions of this study.

The first theme is about digital culture elements. The qualitative research revealed six digital culture elements that are critical in a digital transformation which are; 1) Digital Vision, 2) Innovation Culture, 3) Agile Way of Working, 4) Customer-centricity, 5) Collaboration and 6) Digital Leadership. The second theme is about value creation from digital transformation, which revealed three areas of value creation; 1) financial improvement, 2) productivity improvement, and 3) customer satisfaction. Finally, the third theme is about implementing digital culture. In this research, findings from the qualitative research then become an input for the quantitative research.

The quantitative data analysis section starts with a discussion on the questionnaire response rate and data reliability which are considered acceptable and reliable for further analysis. Then descriptive statistics are presented, outlining the status of digital transformation, duration of the transformation and level of digital transformation adoption. Following that, the hypotheses developed for this research are tested using Kendall's rank correlation coefficient. Based on the analysis, the digital culture elements identified from the qualitative research are validated and considered relevant to the SME population.

In terms of value creation from digital transformation, all hypotheses are accepted as there is a positive correlation. The finding justified that digital transformation improves SMEs' financial, productivity, and customer satisfaction. Next, hypotheses were tested to analyse how to implement digital culture effectively. The analysis revealed that all correlation coefficients between the variables are positive, which concluded that the hypotheses are validated and accepted. The following chapter will elaborate further on the findings by integrating the qualitative and quantitative research results, forming a conclusion of this research.

CHAPTER 5: CONCLUSION

5.1 SUMMARY OF KEY FINDINGS

This research has three research questions, as presented in *Section 1.5*, which are; 1) *what are the key elements of organisational culture that drive digital transformation for the SME?* 2) *what is the relationship between organisational culture and value creation through digital transformation for the SME?, and* 3) *how does SME implement culture transformation to achieve an effective digital transformation?*. The following sub-sections will review the findings according to the respective research questions and present the conclusion at the end of each section.

5.1.1 DIGITAL CULTURE ELEMENTS

It is notable from the literature review that digital culture is a critical factor in accelerating digital technologies adoption, creating competitive advantage and ensuring sustainable performance through digital transformation. Several research works discuss the critical elements of digital culture, but there is no integrated view of the concept. Therefore, this research attempts to provide a unified understanding of the concept by identifying and characterising the digital culture. The literature review presented in the previous chapters showed that there are six key elements of digital culture, namely; 1) Digital Vision, 2) Innovation Culture, 3) Agile way of working, 4) Customer-centricity, 5) Collaboration and 6) Digital Leadership.

These elements appeared in various works of research in an unsystematic way. Therefore, to facilitate the process of refining the concept, the McKinsey 7-S framework, which stands for; 1) Strategy, 2) Structure, 3) System, 4) Skill, 5) Staff, 6) Style and 7) Shared Values, has been adopted as a diagnostic model to interlink the digital culture elements that could lead towards an effective digital transformation.

The analysis concluded that the Shared Values represent the Digital Culture, which is essentially the epicentre element that drives the implementation and success of a compelling digital transformation journey. In addition, any organisation that aspires to accelerate its digital transformation must have; 1) Strategy that drives the Digital Vision, 2) Structures that embraces Innovation Culture, 3) Systems that enable Agile Way of Working, 4) Skills founded by Customer-

centricity, 5) Staff that works through Collaboration, 6) Style that is Digital Leadership driven. These are the ingredients of an influential digital culture.

A comprehensive and disciplined methodology encompassing both the "what" and the "how" is needed to achieve extraordinary results. Hence, this research adopts an exploratory sequential mixed method to authenticate the relevancy of these digital culture elements. The first phase of this study is qualitative research. The focus is to understand "what" are the digital culture elements. The qualitative research revealed that the interview participant had suggested a similar perspective to the digital culture elements presented in the literature review. Although the participant does not explicitly express the exact terminology described in the literature during the interview, the meaning and context of the dialogue are aligned.

Following that, in the second phase, which is quantitative research, these digital culture elements are further tested to validate their relevancy through a survey involving a sample of 384 SMEs. From the 315 responses received, it can be concluded that the identified digital culture elements are all validated and considered relevant to the SME population. In conclusion, the RQ1: *what are the key elements of organisational culture that drive digital transformation for the SME?* is accomplished. The key elements of digital culture that drive digital transformation for the SME in selected states of Malaysia are; 1) Digital Vision, 2) Innovation Culture, 3) Agile way of working, 4) Customer-centricity, 5) Collaboration and 6) Digital Leadership.

5.1.2 VALUE CREATION FROM DIGITAL TRANSFORMATION

These digital culture elements, as described above, then became the key variables that were tested further to investigate their relationship with value creation from digital transformation. This analysis aims to address the gap in the literature since there is a limited study investigating the impact of digital culture on value creation, specifically for SMEs. Furthermore, the finding from the analysis may strengthen the validity and relevancy of those digital culture elements. It also provides a positive valence that motivates SMEs to transform their culture as a prerequisite to digital transformation.

The literature review yielded three core areas of value creation from digital transformation. These core areas are classified as the *triple win* in this research, which is; 1) financial performance, 2) productivity improvement, and 3) customer satisfaction. However, a noticeable gap in previous

research is that there is a limited study that investigates the impact of digital culture on the value creation from digital transformation for SMEs. Hence, to address this gap, this research firstly validates and explores through qualitative research whether the same areas of value creation are relevant to SMEs in Malaysia. Then, hypotheses were developed and tested through quantitative research to substantiate whether the digital culture elements influence value creation in order to have a broader view of the population.

The result from the qualitative research justified that the three areas of value creation from digital transformation are similar to what has been discussed in the literature review. The interview participant also provides an indicative percentage of improvement in each area. Building upon the results from the qualitative research, all of the digital culture elements were then tested through a survey to examine their relationship with value creation. The findings revealed that all hypotheses are accepted. It is proven that there is a positive correlation between the digital culture elements and all three areas of value creation, as discussed. In conclusion, the RQ2: *what is the relationship between organisational culture and value creation through digital transformation for the SME?* was validated.

5.1.3 IMPLEMENTING DIGITAL CULTURE

Knowing "what" are the digital culture elements is not enough. It is also essential to know "how" to implement the digital culture transformation. There are several theoretical frameworks discussed in the literature review. However, the TPB has been selected as the most appropriate model for this research as it has a predictive characteristic to measure the organisational behaviour to adopt digital transformation. From the qualitative study in this research, the interview participant highlighted three sub-themes under the Implementing Digital Culture theme, which are; 1) Standalone Unit for Digital Transformation, 2) Continuous Learning, and 6) Digital Talent. These themes outlined the key aspects that are required in implementing digital culture.

Furthermore, these themes served as the primary input that was analysed further in the quantitative research. The assessment aims to establish concept generalisation in this subject and formulate an actionable framework for SMEs towards digital transformation adoption. 15 hypotheses were developed and tested. The commonality in all hypotheses is to test whether there is a positive correlation between all critical aspects required in implementing digital culture and the digital transformation adoption rate. Based on the analysis, all hypotheses have a positive correlation

coefficient. A positive correlation indicates that the identified variables are the key factors needed in implementing digital culture.

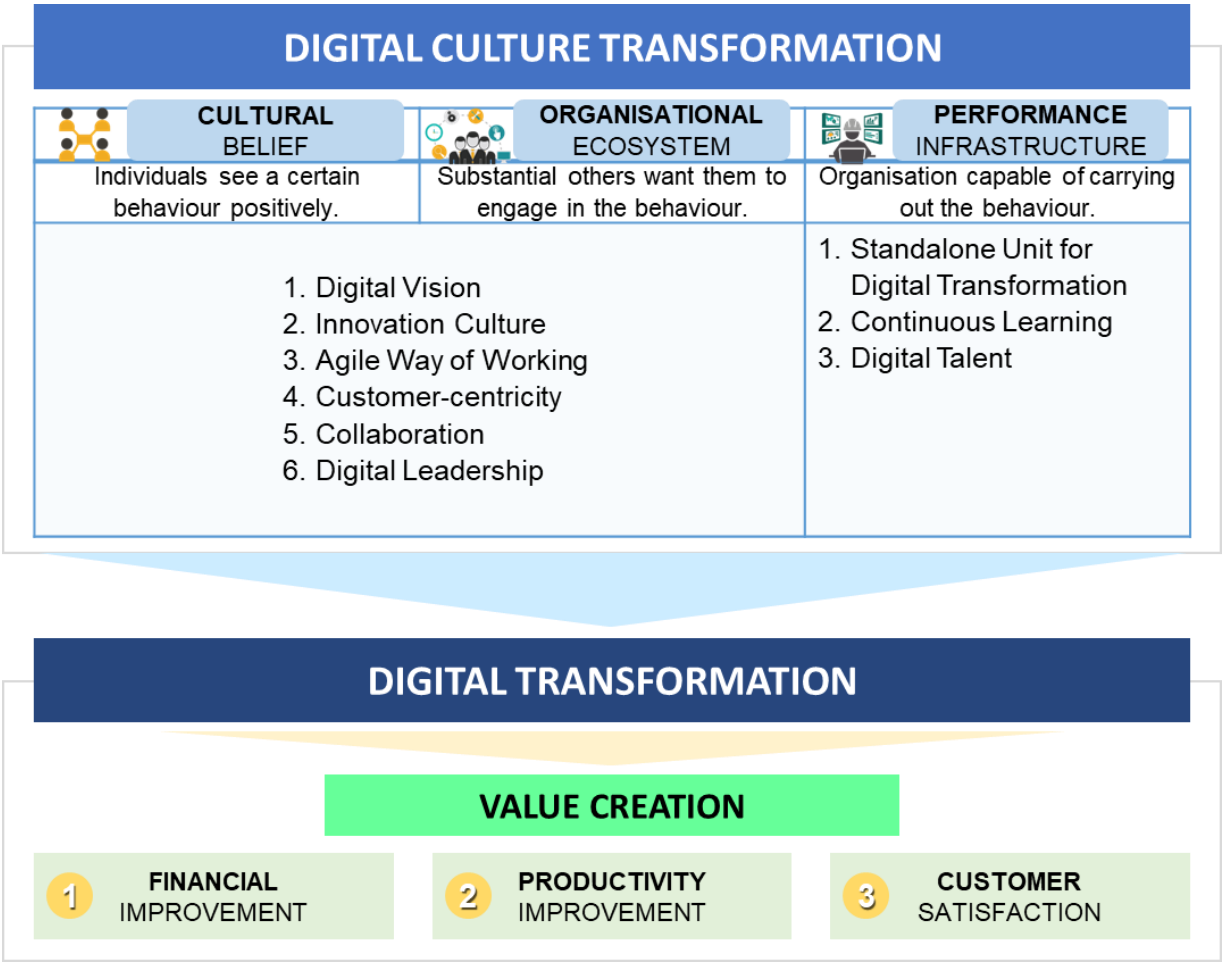
In essence, any SME that intends to implement digital culture must have the right attitude towards the behaviour, particularly in cultivating the digital culture elements on an individual level. Furthermore, SMEs need to positively influence the organisation by exerting social pressure that strengthens the digital culture, which forms normative beliefs. These beliefs, also known as the subjective norm, will solidify their behaviour and intention to accelerate their digital transformation. On top of that, the SMEs need to have the appropriate processes, people or tools to implement the intended transformation, which refers to the perceived behavioural control.

In conclusion, the RQ3: *how does SME implement culture transformation to achieve an effective digital transformation?* was accomplished. From this research, it is understood that there are three critical aspects for SME to implement digital culture transformation, which are: 1) Standalone Unit for Digital Transformation, 2) Continuous Learning, and 3) Digital Talent. Hence based on these findings, this research successfully formulated a digital culture transformation framework that SMEs could adopt to accelerate their digital transformation. This framework addresses the "how" to implement digital culture transformation by outlining the key characteristics needed. Further elaboration on the critical aspects of implementing the digital culture was explained in the next section.

5.2 DIGITAL CULTURE TRANSFORMATION FRAMEWORK

A conceptual model was developed using the TPB model introduced by Ajzen (1991) as a base, supported by this study's literature review and mixed-method research. The theoretical framework was then modified to integrate the findings to become the conceptual framework. This modified framework is called the Digital Culture Transformation framework proposed to SMEs to accelerate their digital transformation. The Digital Culture Transformation framework is shown in *Figure 5.1* below.

Figure 5. 1: Digital Culture Transformation Framework



This framework serves as a fundamental checklist for the SMEs that intend to transform their culture towards digital culture. There are three primary constructs: 1) cultural belief, 2) organisational ecosystem, and 3) performance infrastructure. In essence, as an individual, SMEs need to uphold and subscribe to cultural beliefs that consist of six core beliefs; 1) Digital Vision, 2) Innovation Culture, 3) Agile Way of Working, 4) Customer-centricity, 5) Collaboration, and 6) Digital Leadership. This refers to individuals within the organisation who need to see a certain behaviour positively by subscribing to the digital culture elements. In addition, irrespective of position in the organisation, all employees must have the right mindsets and behaviour that support the transformation agenda. This cultural belief guides the people towards a unified purpose in their digital transformation, ensuring the transformation journey's success.

At the organisational level, SMEs need to have an ecosystem that promotes continuous improvement momentum. This refers to the importance of significant others that want them to engage in the behaviour. This organisational ecosystem acts as a breeding ground to cultivate the digital culture of an organisation. The critical aspects of the organisational ecosystem are; 1) having clarity in its Digital Vision, 2) continuously focusing on Innovation Culture, 3) empowering employees to lead the digitalisation journey through the Agile Way of Working, 4) focusing on Customer-Centricity, 5) having Collaborative Culture, and more importantly 6) having Digital Leadership that is leading the transformation. The topmost critical ingredients that will tremendously lead to higher digital transformation adoption are Digital Leadership which drives the transformation and clarity in Digital Vision and goals.

The enablement of the digital culture will need to be supported by three core performance infrastructures. Performance infrastructure consists of the people, processes, and tools that work in concert to ensure superior execution and value delivery. In the context of enabling digital culture transformation, the performance infrastructures needed are; 1) they need to have a Standalone Unit for Digital Transformation, 2) a system that promotes Continuous Learning in improving its business, leveraging on digital technologies, and 3) hire and develop suitable Digital Talent to drive the digital transformation. The ability for the SMEs to fulfil all of these requirements following the Digital Culture Transformation framework will accelerate their digital transformation adoption, hence leading towards achieving sustainable value creation, particularly in terms of financial improvement, productivity improvement and ultimately customer satisfaction.

5.3 RESEARCH CONTRIBUTION

The output of this research will lead to a significant contribution to the growing body of knowledge related to digital transformation, formulation of a practical framework for industry players and input for the government economic development agenda. *Table 5.1* below provides justification on the alignment of the research contributions and new findings obtained from this research with the research objectives.

Table 5. 1: Alignment of the Research Objectives and Contributions

Research aims: To investigate elements of organisational culture that drive digital transformation for the Malaysian SMEs in the selected states, particularly in the retail sector, and subsequently to develop a Culture Transformation framework to ensure effective implementation of Digital Transformation for the SME.	
Research Question 1: What are the key elements of digital culture that drive digital transformation for SMEs?	
Research Objective 1:	**Research Contributions:**
To determine the key elements of digital culture that drive digital transformation for the SME.	1. This research provides a theoretical contribution to the literature, particularly on the digital transformation of SMEs in selected states of Malaysia, while augmenting it with the fundamental literature on organisational change and transformation. The stark differentiator in this research is that culture change prevails over mere technology adoption. Therefore, this research uncovers the critical levers for culture transformation in driving a successful digital transformation journey. Hence, this research is considered a novel input to the existing body of knowledge due to its uniqueness.
Research Question 2: What is the relationship between digital culture elements and value creation through digital transformation for the SME?	
Research Objective 2:	**Research Contributions:**

To analyse the relationship between digital culture elements and value creation through digital transformation for the SME.	1. This research also provides evidence on digital transformation in relation to value contribution to the organisation, particularly for SMEs in selected states of Malaysia. This research revealed a link between effective digital transformation and value creation, such as financial improvement, operational benefits and customer experience. This insight is significant as it gives SMEs a better perspective on the benefits of going digital, which would encourage the adoption of digital transformation. In these instances, providing empirical evidence on the value creation from digital transformation would trigger industry players to break the hesitation and embark on digital transformation successfully.
Research Question 3: How does SME implement digital culture transformation to achieve an effective digital transformation?	
Research Objective 3:	**Research Contributions:**
To develop a digital culture transformation framework for the SME to achieve an effective digital transformation.	1. One of the main gaps identified in the previous research works was the lack of a digital transformation framework to guide SMEs in adopting digital transformation. Various unproven digital transformation frameworks have been introduced in other research. However, most frameworks focus more on digital technology implementation than culture transformation. This research formulates and proposes a Digital Culture Transformation framework to be adopted by SMEs as a guide to embark on the digital transformation journey. This research emphasises transforming the digital culture as a prerequisite to driving a successful digital transformation. It provides practicality for the effective enablement of digital culture. 2. In addition to the theoretical contributions, this research provides insights on implications for policymakers. Malaysia's digital

	economy is poised to be the new driver of economic development. Therefore, the emergence and importance of digital transformation to businesses in Malaysia will increase. The conceptual model developed through this research can be used as a frame of reference for policymakers and researchers to understand digital transformation for SMEs in Malaysia, particularly in driving digital transformation through culture change. By focusing on digital culture, researchers and policymakers could potentially increase the success rate of digital transformation efforts, thus creating a sustainable value creation for the companies and country. 3. Essentially, this research could be a vital input for the Malaysia Digital Transformation Acceleration Programme led by the MDEC. This research intends to solve the issue of low adoption of digital transformation within SMEs in Malaysia. The Digital Culture Transformation framework developed from this research can be used by policymakers as a predictive tool to forecast digital adoption by businesses, particularly SMEs in Malaysia. For instance, if the SMEs have partly implemented the requirements per the framework, their likelihood of digital adoption and successful digital transformation is low. The framework will point out which area in terms of their digital culture the SMEs lack. This insight will enable the policymakers to plan for a more targeted effort to address that specific area and design solutions that could address the issue. Doing so will increase the rate of adoption of digital transformation.

5.4 RESEARCH LIMITATION

Every research has some limitations, and the same applies to this research. One of the limitations of this research is that it is restricted to a single case study in qualitative research. Although organisational culture is unique for each organisation, exploring the cultural elements of many organisations will be challenging and time-consuming. However, it is arguable that the digital culture elements that have been discovered from that one company may not be easily replicated in others. The quantitative research was intended to overcome this issue by testing the digital culture elements with a sample of the SME population. However, the SMEs that participated in the survey may have slightly different interpretations of the cultural elements. Therefore, further investigation through qualitative research is required to further understand the SME's perspective by involving more case studies.

Another limitation is that this research does not cover other external perspectives, such as governmental support in driving the Malaysia Digital Economy. The Malaysian government has been actively promoting and catalysing the adoption of digital transformation among SMEs. Due to this, the initiatives implemented by the government could have influenced the SMEs' behaviour to adopt it. For example, SMEs may initially face difficulties in embarking on digital transformation. However, due to support from the government, SMEs now have access to various supports, e.g. financial or training programmes. Hence, regardless of whether their organisational culture shapes their digitalisation agenda or not, they could probably still have adopted digital transformation as they have access to an abundance of external supports.

5.5 FUTURE RESEARCH

The limitations, as highlighted above, provide paths for future research, which will enhance organisational transformation literature, particularly in digital transformation for SMEs. Furthermore, as mentioned above, future research may validate the digital culture elements that have been discovered in this research through qualitative research involving several more case studies. Qualitative research is suitable for organisational culture research. Through a qualitative study by conducting in-depth interviews and using focus group techniques, a researcher may validate the digital culture elements and probably discover other critical cultural elements that could complement this research.

Another opportunity for future research is to validate the digital culture elements and test the efficacy of the Digital Culture Transformation framework by factoring in other external factors that could be the moderating variables. Other external factors such as government support, financial institution support, access to digital technologies, and availability of digital talent are among the critical factors that could influence the acceleration of digital transformation. A researcher may continue from this study and link those external factors that are considered relevant. It is interesting to investigate how those external factors may affect the rate of digital transformation adoption for SMEs.

This research mainly focuses on SMEs in Malaysia. Hence, there is an opportunity for future research to conduct a similar study in another country in the ASEAN region or other countries in different parts of the world. Notably, many countries have recognised SMEs as an essential economic backbone. Hence, it is vital to continue investigating this topic in other countries, leading to potential growth in the respective economies. However, different countries may have different cultures. Therefore, it is interesting to conduct a comparative analysis among the ASEAN countries related to the same subject since ASEAN is the fastest-growing internet market in the world with promising immense growth potential in the digital economy.

REFERENCES

Abdul, H., Noor, H., Ahmad, H., Ramayah, T., Hanifah, H., Khadijeh, S., Marini, T., Mohamad, N., Abdul Halim, H., Ahmad, N. H., Ramayah, T., Hanifah, H., Taghizadeh, S. K., & Mohamad, M. N. (2015). Towards an Innovation Culture: Enhancing Innovative Performance of Malaysian SMEs. *Academic Journal of Interdisciplinary Studies*, *4*(2), 85–94. https://doi.org/10.5901/ajis.2015.v4n2p85

Abouzeedan, A. (2011). *SME Performance and Its Relationship to Innovation* (Issue 1364) [Linköpings universitet, SE-581 83 Linköping, Sweden]. http://liu.diva-portal.org/smash/get/diva2:447516/FULLTEXT01.pdf%0Ahttp://urn.kb.se/resolve?urn=urn:nbn:se:liu:diva-71349

Adom, D., Hussain, E. K., & Joe, A. A. (2018). Theoretical and Conceptual Framework: A Mandatory Ingredients of a Quality Research. *International Journal of Scientific Research*, *7*(1), 93–98. https://www.researchgate.net/publication/322204158%0ATHEORETICAL

Aghina, W., Ahlback, K., De Smet, A., Fahrbach, C., Handscomb, C., Lackey, G., Lurie, M., Murarka, M., Salo, O., Seem, E., Woxholth, J., Aronowitz, S., Bergman, E., Brosseau, D., Comella-Dorda, S., Dhingra, N., Di Marcello, F., Ellsworth, D., Gagnon, C., … Wilson, S. (2017). The 5 Trademarks of Agile Organizations. *McKinsey & Company*, *December*, 1–22.

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, *50*(2), 179–211. https://doi.org/10.1016/0749-5978(91)90020-T

Ajzen, I. (2006). *Constructing a TpB Questionnaire: Conceptual and Methodological Considerations*. http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.601.956&rep=rep1&type=pdf

Akhter Shareef, M., Kumar, V., Kumar, U., & Akhter Hasin, A. (2009). Theory of Planned Behavior and Reasoned Action in Predicting Technology Adoption Behavior. In *Handbook of Research on Contemporary Theoretical Models in Information Systems* (pp. 544–562). IGI Global. https://doi.org/10.4018/978-1-60566-659-4.ch031

Aksoy, H. (2017). How do innovation culture, marketing innovation and product innovation affect the market performance of small and medium-sized enterprises (SMEs)? *Technology in Society*, *51*, 133–141. https://doi.org/10.1016/j.techsoc.2017.08.005

Ambiose, G. (2000). Vision and objetives: a must for SMEs in the new economy. *Investigaciones Europeas de Dirección y Economía de La Empresa*, *6*(2), 57–64.

Amos Tong, & Gong, R. (2020). *The impact of COVID-19 on SME digitalisation in Malaysia*. LSE Southeast Asia Blog. https://blogs.lse.ac.uk/seac/2020/10/20/the-impact-of-covid-19-on-sme-digitalisation-in-malaysia/

Andersson, P., Movin, S., Mähring, M., Teigland, R., & Wennberg, K. (2016). *Managing Digital*

Transformation. Stockholm School of Economics Institute for Research. https://doi.org/10.1007/978-3-319-23279-9

Apsalone, M. (2018). Effects of Organizational Culture on Organizational Innovation in Small Businesses. *International Journal of Trade, Economics and Finance*, *9*(1), 41–45. https://doi.org/10.18178/ijtef.2018.9.1.586

Ashkansy, M. N., Wilderon, P. M., & Peterson, F. M. (2011). *The Handbook of Organizationan Culture (2nd ed.)*. California: Sage Publications.

Aspplund, R. (2003). *Flexibility and Competitiveness: Labour Market Flexibility, Innovation, and Organisational Performance* (Vol. 109). http://www.etla.fi/

Atkinson, R. D., & McKay, A. S. (2011). Digital Prosperity: Understanding the Economic Benefits of the Information Technology Revolution. *SSRN Electronic Journal*, *March*. https://doi.org/10.2139/ssrn.1004516

Ayres, L. (2008). Thematic coding and analysis. In L. M. Given (Ed.),. In *The SAGE Encyclopedia of Qualitative Research Methods* (pp. 867–868). Thousand Oaks, CA: Sage Publications.

Azman, N. H. (2021). *50,000 SMEs face closure under MCO 3.0*. The Malaysian Reserve. https://themalaysianreserve.com/2021/06/08/50000-smes-face-closure-under-mco-3-0/

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, *84*, 191—215.

Barann, B., Hermann, A., Cordes, A.-K., Chasin, F., & Becker, J. (2019). Supporting Digital Transformation in Small and Medium-sized Enterprises: A Procedure Model Involving Publicly Funded Support Units. *Proceedings of the 52nd Hawaii International Conference on System Sciences*. https://doi.org/10.24251/hicss.2019.598

Baruch, Y., & Holtom, B. C. (2008). Survey Response Rate Levels and Trends in Organizational Research. *Human Relations*, *61*(8), 1139–1160.

Beer, M., & Nohria, N. (2000). *Breaking the code of change*. Boston: Harvard Business School Press.

Belias, D., & Koustelios, A. (2014). the Impact of Leadership and Change Management Strategy on Organizational Culture. *European Scientific Journal, ESJ*, *10*(7), 451–470. http://www.eujournal.org/index.php/esj/article/view/2996

Berghaus, S. (2018). *The Fuzzy Front End of Digital Transformation: Activities and Approaches for Initiating Organizational Change Strategies*. *4704*, 178. https://doi.org/10.1057/9780230512771_16

Bibler, R. S. (1989). *The Arthur young management guide to mergers and acquisitions.* Hoboken,NJ: Wiley.

Biesok, G., & Wyród-Wróbel, J. (2011). Customer satisfaction - Meaning and methods of measuring. *Marketing and Logistic Problems in the Management of Organization*, *June*, 23–41.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, *3*(2), 77–101.

Broekhuizen, T. L. J., Bakker, T., & Postma, T. J. (2018). Implementing new business models: What challenges lie ahead? *Business Horizons*, *61*(4), 555–566.

Burchardt, C., & Maisch, B. (2019). Digitalization needs a cultural change – examples of applying Agility and Open Innovation to drive the digital transformation. *Procedia CIRP*, *84*, 112–117. https://doi.org/10.1016/j.procir.2019.05.009

Burns, B. (2004). *Managing change*. Upper Saddle River,NJ: Prentice Hall.

Buvat, J., Crummenerl, C., Slatter, M., Puttur, R. K., Pasquet, L., & As, J. van. (2017). *The Digital Talent Gap— Are Companies Doing Enough?* https://www.capgemini.com/wp-content/uploads/2017/10/dti_the-digital-talent-gap_20171109.pdf

By, R. T. (2005). Organisational Change Management : A Critical Review. *Journal of Change Management*, *5*(December), 369–380. https://doi.org/10.1080/14697010500359250

Capgemini. (2011). Digital Transformation: A Roadmap for Billion-Dollar Organizations. *Capgemini Consulting*, *726*, 460–464. https://doi.org/10.4028/www.scientific.net/kem.726.460

Capgemini Consulting. (2012). The Digital Advantage: How Digital Leaders Outperform their Peers in Every Industry. *MIT Sloan Management Review*, 1–24. http://www.capgemini.com/resource-file-access/resource/pdf/The_Digital_Advantage__How_Digital_Leaders_Outperform_their_Peers_in_Every_Industry.pdf

Carr, C., Scott Snyder, Barnakova, Y., & Duda, S. (2019). Building a Digital Culture. In *Hendric consulting*. http://www.strategyand.pwc.com/global/home/what-we-think/reports-white-papers/article-display/building-a-digital-culture

Charmaz, K. (2006). *Constructing grounded theory*. Thousand Oaks.

Choi, Y. J., & Park, J. W. (2020). Investigating factors influencing the behavioral intention of online duty-free shop users. *Sustainability (Switzerland)*, *12*(17), 1–20. https://doi.org/10.3390/su12177108

Christensen, C. M., Bartman, T., & Van Bever, D. (2016). The hard truth about business model innovation. *Sloan Management Review*, *58*(1), 30–40.

Chyung, S. Y. Y., Roberts, K., Swanson, I., & Hankinson, A. (2017). Evidence-Based Survey Design: The Use of a Midpoint on the Likert Scale. *Performance Improvement*, *56*(10), 15–

23. https://doi.org/10.1002/pfi.21727

Cochran, W. G. (1953). *Sampling Techniques*. John Wiley & Sons, Inc.

Cooper, R. G. (2005). Winning at New Products: Pathways to Profi table Innovation The. In *Innovation*.

Cope, M. (2003). *The seven C's of consulting (2 Edition)*. Upper Saddle River, NJ: Financial Times/Prentice Hall.

Cortellazzo, L., Bruni, E., & Zampieri, R. (2019). The role of leadership in a digitalized world: A review. *Frontiers in Psychology*, *10*(AUG), 1–21. https://doi.org/10.3389/fpsyg.2019.01938

Creswell, J. W., & Clark, V. L. P. (2018). *Designing and conducting mixed methods research* (3rd ed.). SAGE Publications Inc.

Davis, F. D. (1989). Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology. *MIS Quarterly*, *13*(3), 1–23. https://doi.org/10.2307/249008

Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (1989). User Acceptance of Computer Technology: A Comparison of Two Theoretical Models. *Management Science*, *35*(8), 982–1003. https://doi.org/10.1287/mnsc.35.8.982

Deloitte. (2012). Deloitte Australia: Digital Disruption - Short Fuse, Big Bang? In *Deloitte*. https://econsultancy.com/blog/10931-deloitte-australia-digital-disruption-short-fuse-big-bang

Deloitte. (2017). Disruptions in Retail through Digital Transformation. *Deloitte*, *1*(November), 1–64. https://www2.deloitte.com/content/dam/Deloitte/in/Documents/CIP/in-cip-disruptions-in-retail-noexp.pdf

Fetters, M. D., Curry, L. A., & Creswell, J. W. (2013). *Achieving Integration in Mixed Methods Designs — Principles and Practices*. *December 2015*. https://doi.org/10.1111/1475-6773.12117

Fishbein, M., & Ajzen, I. (1975). *Belief, Attitude, Intention, and Behavior: An Introduction to Theory and Research.* Reading, MA: Addison-Wesley.

Foerster-Metz, U. S., Marquardt, K., Golowko, N., Kompalla, A., & Hell, C. (2018). Digital Transformation and its Implications on Organizational Behavior. *Journal of EU Research in Business*, *2018*, 1–14. https://doi.org/10.5171/2018.340873

Gerards, R., de Grip, A., & Baudewijns, C. (2018). Do new ways of working increase work engagement? *Personnel Review*, *47*(2), 517–534. https://doi.org/10.1108/PR-02-2017-0050

Ghosh, R. (2019). *Talent and New ways of working in the age of digital transformation*. https://s17776.pcdn.co/wp-content/uploads/2019/03/WD-NASSCOM-New-Ways-of-Working-Feb-2019.pdf

Gilley, A., Gilley, J. W., & McMillan, H. S. (2009). Organizational Change: Motivation, Communication, and Leadership Effectiveness. *Performance Improvement Quarterly*, *21*(4), 75–94. https://doi.org/10.1002/piq.20039

Gillham, B. (2005). *Research Interviewing: The Range of Techniques.* Maidenhead, England: Open University Press.

Gong, M., & Yan, K. (2004). *Applying Technology Acceptance Model, Theory of Planned Behavior and Social Cognitive Theory to Mobile Data Communications Service Acceptance*. http://aisel.aisnet.org/pacis2004

Grant, C., & Osanloo, A. (2014). Understanding, Selecting, and Integrating a Theoretical Framework in Dissertation Research: Creating the Blueprint for 'House.' *Administrative Issues Journal: Connecting Education, Practice and Research*, *4*(2), 7. https://doi.org/10.5929/2014.4.2.9

Grant, D., Michelson, G., Oswick, C., & Wailes, N. (2005). Discourse and organizational change. *Journal of Organizational Change Management*, *18*(1), 1–106. www.emeraldinsight.com/0953-481.htm

Groussolles, F., Madera, J., Ottendorf, J., Suhonen, S., & Treschow, N. (2018). *Culture as Key Success Factor in Industrial Digital Transformation*. https://www.russellreynolds.com/insights/thought-leadership/culture-as-key-success-factor-in-industrial-digital-transformation#:~:text=Cultures that are committed to,them achieve higher order goals.

Hamp-Lyons, L., & Morrison, B. (2007). Grounded Theory Research: increasing accountability and credibility through the use of the worked example. *The International Journal of Interdisciplinary Social Sciences: Annual Review, 2*(3), 413–424.

Hanifah, H., Halim, H. A., Ahmad, N. H., & Vafaei-Zadeh, A. (2017). Understanding the innovation culture towards innovation performance among Bumiputera SMEs. *International Journal of Economic Research*, *14*(16), 279–293.

Hartl, E. (2019). A Characterization of Culture Change in the Context of Digital Transformation. *Twenty-Fifth Americas Conference on Information Systems, August 2019*, 1–10. https://www.researchgate.net/publication/340648016

Hartl, E., & Hess, T. (2017). The role of cultural values for digital transformation: Insights from a delphi study. *AMCIS 2017 - America's Conference on Information Systems: A Tradition of Innovation*, *2017-Augus*(August).

Heavin, C., & Power, D. J. (2018). Challenges for digital transformation–towards a conceptual decision support guide for managers. *Journal of Decision Systems*, *27*(May), 38–45. https://doi.org/10.1080/12460125.2018.1468697

Hemerling, J., Kilmann, J., Danoesastro, M., Stutts, L., & Ahern, C. (2018). It's not a digital transformation without a digital Culture. In *Boston Consulting Group*.

https://www.bcg.com/publications/2018/not-digital-transformation-without-digital-culture.aspx

Hess, T., Benlian, A., Matt, C., & Wiesböck, F. (2016). How German Media Companies Defined Their Digital Transformation Strategies. *MIS Quarterly Executive*, *15*(2), 103–119.

Holotiuk, F., & Beimborn, D. (2017). Critical Success Factors of Digital Business Strategy. *Proceedings Der 13. Internationalen Tagung Wirtschaftsinformatik (WI 2017)*, 991–1005. https://doi.org/10.1016/S0144-8188(01)00064-3

Holten, A. L., & Brenner, S. O. (2015). Leadership style and the process of organizational change. *Leadership and Organization Development Journal*, *36*(1), 2–16. https://doi.org/10.1108/LODJ-11-2012-0155

Hsi, S. (2007). Conceptualizing learning from the everyday activities of digital kids. *International Journal of Science Education*, *29*(12), 1509–1529.

Hwa, T. B., Haris, A., & Zukki, M. (2017). *Unlocking Malaysia's Digital Future : Opportunities, Challenges and Policy Outlook and Policy in 2018 A Macroeconomic Perspective of the Digital Landscape in Malaysia Outlook and Policy in 2018*.

Hyvönen, J. (2018). *Strategic leading of digital transformation in large established companies-a multiple case-study* [Aalto University School]. https://aaltodoc.aalto.fi/bitstream/handle/123456789/30110/master_Hyvönen_Janne_2018.pdf?sequence=1&isAllowed=y

Ibidunni, S., Agboola, M., State, O., & State, O. (2013). Organizational Culture : Creating , Changing , Measuring and Consolidating for Performance. *European Journal of Business and Management*, *5*(32), 177–187.

International Data Corp. (2017). The Next Steps in Digital Transformation. *An IDC InfoBrief, Sponsored by SAP*, *January*, 24. http://news.sap.com/wp-content/blogs.dir/1/files/SAP_IDC_infobrief_SMB_DX_102016.pdf

Janićijević, N. (2011). Methodological approaches in the research of organizational culture. *Economic Annals*, *56*(189), 69–100. https://doi.org/10.2298/EKA1189069J

Kane, G. C., Palmer, D., Nguyen Phillips, A., Kiron, D., & Buckley, N. (2017). Achieving Digital Maturity. *MIT Sloan Management Review and Deloitte University Press*, *59180*, 1–29. https://sloanreview.mit.edu/projects/achieving-digital-maturity/

Kane, G. C., Palmer, D., Philips Nguyen, A., Kiron, D., & Buckley, N. (2015). Strategy, Not Technology, Drives Digital Transformation. *MIT Sloan Management Review & Deloitte*, *57181*, 27. http://sloanreview.mit.edu/projects/strategy-drives-digital-transformation/

Kane, G. C., Palmer, D., Phillips, A. N., Kiron, D., & Buckley, N. (2016). Aligning the Organization for Its Digital Future. *MITSloan Management Review*, *58180*, 1–29.

Kanwal, S., Nunes, M. B., & Arif, M. (2019). Knowledge management practice in South Asian higher education institutions. *Int. Federation Library Assoc. Instit.*, *45*, 309–321. https://doi.org/10.1177/0340035219876958

Kaplan, R. S., & Norton, D. P. (2004). *Strategy Maps : Converting Intangible Assets into Tangible Outcomes*. Harvard Business Review Press.

Kennedy, A. A., & Deal, T. E. (1982). *Corporate Cultures: The Rites and Rituals of Corporate Life*. Cambridge MA, Basic Books.

Khancel, H. (2019). Digital Transformation: How To Organize the Digital Function Within the Tunisian Company? *Review of General Management*, *29*(2), 145–154. http://search.ebscohost.com/login.aspx?direct=true&AuthType=ip,uid,shib&db=bsu&AN=141427490&site=ehost-live&scope=site

King, N. (2004). Using Interviews in Qualitative Research. In C. Cassell & G. Symon (Eds.). In *Essential Guide to Qualitative Methods in Organizational Research*. London: Sage.

Kingma, S. (2019). New ways of working (NWW): work space and cultural change in virtualizing organizations. *Culture and Organization*, *25*(5), 383–406. https://doi.org/10.1080/14759551.2018.1427747

Knabe, A. (2012). *Applying Ajzen's Theory of Planned Behavior to a Study of Online Course Adoption in Public Relations Education* [Marquette University]. https://epublications.marquette.edu/dissertations_mu/186

Kocaoglu, B., & Demir, E. (2019). The use of McKinsey s 7S framework as a strategic planning and economic assestment tool in the process of digital transformation. *Pressacademia*, *9*(9). https://doi.org/10.17261/pressacademia.2019.1078

Kostić, N. (2020) *What is the best way to organise your Digital Transformation journey?, IPG Group*. Available at: https://swiss-ipg.com/en/insights/item/353-what-is-the-best-way-to-organize-your-digital-transformation-journey.html. Kukkamalla, P. K., Bikfalvi, A., & Arbussa, A. (2020). The new BMW: business model innovation transforms an automotive leader. *Journal of Business Strategy*. https://doi.org/10.1108/JBS-02-2020-0021

Lamberti, L. (2013). Customer centricity: the construct and the operational antecedents. *Journal of Strategic Marketing*, *21*(7), 588–612. https://doi.org/10.1080/0965254X.2013.817476

Lange, K., Trompenaars, F., Joseph, F., Karner, M., Karpe, S., Ming-Hong, T., Tay, A., Heng, V., & Tan, A. (2018). Cultural Transformation in the Digital World. *Executive Education*, 1–44. http://search.ebscohost.com/login.aspx?direct=true%7B&%7Ddb=bth%7B&%7DAN=118700132%7B&%7Dsite=ehost-live

Lekvall, P., & Wahlbin, C. (2001). Information for Marketing Decision. Göteborg. *IHM Publishing.*

Levy, M., & Powell, P. (2002). SME Transformation : Modelling Progressions. *Proceedings of the 10th European Conference on Information Systems, Information Systems and the Future of the Digital Economy, ECIS 2002*, Gdansk, Poland, June 6-8, 2002.

Lin, J. (2018). Digital transformation to contribute $10 billion to Singapore GDP by 2021: Microsoft. *Business Insider Singapore*, 1–10. https://www.businessinsider.sg/digital-transformation-to-contribute-10-billion-to-singapore-gdp-by-2021-microsoft

Majeed, K., Bhatti, A. M., Nemati, A. R., Rehman, I. U., & Rizwan, A. (2010). Can Cultural Change with Different Leadership Styles Enhance the Organizational Performance ? *Research Journal of International Studies*, *1*(17), 102–132.

Matarazzo, M., Penco, L., Profumo, G., & Quaglia, R. (2021). Digital transformation and customer value creation in Made in Italy SMEs: A dynamic capabilities perspective. *Journal of Business Research*, *123*, 642–656. https://doi.org/10.1016/j.jbusres.2020.10.033

Mathieson, K. (1991). Predicting user intentions: Comparing the technology acceptance model with the theory of planned behavior. *Information Systems Research*, *2*(3), 173–191. https://doi.org/10.1287/isre.2.3.173

McDonald, M. P., & Jones, A. R. (2012). The digital edge. In *Harvard Business Review Press* (Vol. 78, Issue 8). Stamford, CT: Gartner, Inc. http://www.gartner.com/books

McDonald, M. P., & Roswell-Jones, A. (2012). *The Digital Edge*. http://www.gartner.com/books

McKinsey & Company. (2018a). Digital reinvention: Unlocking the 'how.' *McKinsey Insights*, *January*, 1–92. https://www.mckinsey.com/business-functions/digital-mckinsey/our-insights/digital-reinvention-unlocking-the-how

McKinsey & Company. (2018b). Unlocking success in digital transformations. *Unlocking Success in Digital Transformations*, *October*, 1–14.

McLean, G. (2006). *Organization Development: Principles, Processes and Performance*. California: Berrett-Kochler.

McManus, P., Mulhall, S., Ragab, M., & Arisha, A. (2017). An investigation in the methodological approaches used in doctoral business research in Ireland. *Proceedings of the European Conference on Research Methods in Business and Management Studies*, *2017-June*, 233–241.

Meissner, J., & Sprenger, M. (2011). Mixing Methods in Innovation Research: Studying the Process-Culture-Link in Innovation Management. *Historical Social Research*, *36*(1), 180–198. https://doi.org/10.2307/41151263

Microsoft. (2017). *Digital culture: Your competitive advantage*. https://info.microsoft.com/WE-DIGTRNS-CNTNT-FY18-05May-02-DigitalCultureYourCompetitiveAdvantage-MGC0002374_01Registration-ForminBody.html?wt.mc_id=AID702777_QSG_OLA_249592

Microsoft, & IDC Asia Pacific. (2018). *Unlocking the Economic Impact of Digital Transformation in Asia Pacific*. *November*, 31.

Mierke, J., & Williamson, V. (2017). A framework for achieving organizational culture change. *Library Leadership and Management*, *31*(2), 1–16.

Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis: an expanded sourcebook* (2nd ed.). London: Sage.

Miles, M. B., Huberman, A. M., & Saldana, J. (2013). *Qualitative Data Analysis: A Methods Sourcebook* (3rd ed.). London: Sage.

Mulgan, G., & Albury, D. (2003). Innovation in the Public Sector. *Strategy Unit, Cabinet Office*, *1*(40). https://doi.org/10.4337/9781849809757.00026

Nair, K. (2019). Overcoming today's digital talent gap in organizations worldwide. *Development and Learning in Organizations, April*. https://doi.org/10.1108/DLO-02-2019-0044

Nambisan, S., Lyytinen, K., Majchrzak, A., & Song, M. (2017). Digital Innovation Management: Reinventing Innovation Management Research in a Digital World. *MIS Quarterly*, *41*(1), 223–238. https://doi.org/10.25300/misq/2017/41:1.03

Nasco, S. A., Toledo, E. G., & Mykytyn, P. P. (2007). Predicting electronic commerce adoption in Chilean SMEs. *Journal of Business Research*, *61*, 697–705. https://doi.org/10.1016/j.jbusres.2007.06.047

NTT Ltd. (2020). *2019 Global Customer Experience Benchmarking Report*. https://www.dimensiondata.com/en/insights/-/media/dd/insights/cxbr/executive-guide-cxbr-2019.pdf

Palmer, I., & Dunford, R. (1997). Conflicting uses of metaphors: Reconceptualizing their use in the field of organizational change. *The Academy of Management Review*, *21*(3), 691.

Parviainen, P., Tihinen, M., Kääriäinen, J., & Teppola, S. (2017). Tackling the digitalization challenge: how to benefit from digitalization in practice. *International Journal of Information Systems and Project Management*, *5*(1), 63–77. https://doi.org/10.12821/ijispm050104

Patel, R., & Davidson, B. (2011). The basis of the research methodology. Planning, implementing and reporting a survey. *Lund: Student Literature.*

Peters, T. J., & Waterman, R. H. (1982). *In Search of Excellence - Lessons from America's Best-Run Companies.* London: HarperCollins Publishers.

Pradana, M., Pérez-Luño, & Fuentes-Blasco. (2020). Innovation as the key to gain performance from absorptive capacity and human capital. *Technology Analysis and Strategic Management*, *32*(7), 822–834. https://doi.org/10.1080/09537325.2020.1714578

Pradana, M., Silvianita, A., Syarifuddin, S., & Renaldi, R. (2022). The Implication of Digital Organisational Culture on Firm Performance. *Frontiers in Psychology*, *13*(May). https://doi.org/10.3389/fpsyg.2022.840699

Priyono, A., Moin, A., & Putri, V. N. A. O. (2020). Identifying digital transformation paths in the business model of smes during the covid-19 pandemic. *Journal of Open Innovation: Technology, Market, and Complexity*, *6*(4), 1–22. https://doi.org/10.3390/joitmc6040104

Rassool, R., & Dissanayake, R. (2019). Digital Transformation for Small & Medium Enterprises (SMEs). *International Journal of Business and Management*, *Vol.7,No,4*(August), pp.55-76.

Ravitch, S. M., & Carl, N. M. (2016). *Qualitative Research: Bridging the Conceptual, Theoretical and Methodological.* Los Angeles, U.S.A, SAGE Publications, Inc.

Reddy, S. K., & Reinartz, W. (2017). Digital Transformation and Value Creation: Sea Change Ahead. *GfK Marketing Intelligence Review*, *9*(1), 10–17. https://doi.org/10.1515/gfkmir-2017-0002

Reinartz, W., Wiegand, N., & Imschloss, M. (2019). The impact of digital transformation on the retailing value chain. *International Journal of Research in Marketing*, *36*(3), 350–366. https://doi.org/10.1016/j.ijresmar.2018.12.002

Reis, J., Amorim, M., Melão, N., & Matos, P. (2018). Digital transformation: A literature review and guidelines for future research. *Advances in Intelligent Systems and Computing*, *745*(March), 411–421. https://doi.org/10.1007/978-3-319-77703-0_41

Rosch, E. (2002). Lewin's Field Theory as Situated Action in Organizational Change. *Organization Development Journal*, *20*(2).

Ruel, E., Wagner, W. E., & Gillespie, B. J. (2016). *The Practice of Survey Research: Theory and Applications*. SAGE Publications, Inc.

Ruostela, J., Lönnqvist, A., Palvalin, M., Vuolle, M., Patjas, M., & Raij, A. L. (2015). "New Ways of Working" as a tool for improving the performance of a knowledge-intensive company. *Knowledge Management Research and Practice*, *13*(4), 382–390. https://doi.org/10.1057/kmrp.2013.57

Sabbagh, K., Friedrich, R., El-Darwiche, B., Singh, M., & Koster, A. (2013). Digitization for Economic Growth and Job Creation. *The Global Information Technology Report 2013*, 35–42. http://ifap-is-observatory.ittk.hu/taxonomy/term/793

Sainger, G. (2018). Leadership in Digital Age: A Study on the Role of Leader in this Era of Digital Transformation. *International Journal on Leadership*, *6*(1). http://www.publishingindia.com/ijl/60/leadership-in-digital-age-a-study-on-the-role-of-leader-in-this-era-of-digital-transformation/684/4784/

Salim, I. M., & Sulaiman, M. (2011). Organizational learning, innovation and performance: a study of Malaysian small and medium sized enterprises. *International Journal of Business*

and Management, *6*(12), 118–125.

Saunders, M., Lewis, P., & Thornhill, A. (2009). Research Methods For Business Students. In *Pearson Education Limited* (5th ed.). Pearson Education Limited. https://doi.org/10.1080/09523367.2012.743996

Saunders, M., Lewis, P., & Thornhill, A. (2019). Research Methods For Business Students. In *Pearson Education Limited* (8th Editio). www.pearson.com/uk

Schein, E. H. (2010). Organizational Culture and Leadership. In *John Wiley & Sons.* New York: John Wiley & Sons Inc.

Schmidt, D., Majonek, A., Mouillet, D., & Grimm, F. (2017). Wealth Management Digitalization changes client advisory more than ever before. In *Deloitte*. https://www2.deloitte.com/content/dam/Deloitte/de/Documents/financial-services/Wealth Management Digitalization.pdf

Sekaran, U., & Bougie, R. (2016). Reserach Methods for Bussiness A Skill-Bulding Approach. *Printer Trento Srl*, 1–447.

Shah, D., Rust, R. T., Parasuraman, A., Staelin, R., & Day, G. S. (2006). The path to customer centricity. *Journal of Service Research*, *9*(2), 113–124. https://doi.org/10.1177/1094670506294666

Shettima, M. B., & Sharma, N. (2020). Impact of Digitalisation on Small and Medium Enterprises in Nigeria. *Adalyajournal.Com*, 635–644.

Shiau, W.-L., & George, J. F. (2014). A Grounded Theory Approach to Information Technology Adoption. *Communications of the Association for Information Systems*, *34*, 1379–1407. https://doi.org/10.17705/1CAIS.03481

Singh, D. S. M., & Hanafi, N. B. (2020). Innovation Capacity and Performance of Malaysian SMES. *International Journal of Academic Research in Business and Social Sciences*, *10*(2), 665–679. https://doi.org/10.6007/ijarbss/v10-i2/6956

SME Corporation Malaysia. (2018). *Accelerating Malaysian Digital Smes*.

SME Corporation Malaysia. (2021). *Post-pandemic growth: Address barriers to business digital transformation*. https://www.smecorp.gov.my/index.php/en/resources/2015-12-21-10-55-22/news/4462-post-pandemic-growth-address-barriers-to-business-digital-transformation

SME Corporation Malaysia. (2022a). *Micro Enterprises*. https://www.smecorp.gov.my/index.php/en/micro-enterprises

SME Corporation Malaysia. (2022b). *Profile of SMEs*. https://smecorp.gov.my/index.php/en/profile-of-smes

Smith, H. N. (1932). A scale for measuring attitudes about prohibition. *Journal of Abnormal &*

Social Psychology, *26*, 429–437.

Sow, M., & Aborbie, S. (2018). Impact of Leadership on Digital Transformation. *Business and Economic Research*, *8*(3), 139. https://doi.org/10.5296/ber.v8i3.13368

Stagner, R. (1942). Some factors related to attitude toward war, 1938. *Journal of Social Psychology*, *16*, 131–142.

Steven, M. (2021). *How to Create a Customer Centric Strategy For Your Business*. https://www.superoffice.com/blog/how-to-create-a-customer-centric-strategy/

Tang, G. X., Park, K., Agarwal, A., & Liu, F. (2020). Impact of innovation culture, organization size and technological capability on the performance of SMEs: The case of China. *Sustainability (Switzerland)*, *12*(4). https://doi.org/10.3390/su12041355

Tarute, A., Duobiene, J., Kloviene, L., Vitkauskaite, E., & Varaniute, V. (2018). Identifying factors affecting digital transformation of SMEs. *Proceedings of the International Conference on Electronic Business (ICEB)*, *2018-Decem*, 373–381.

Teo, T., Chwee, &, & Lee, B. (2010). Examining the efficacy of the Theory of Planned Behavior (TPB) to understand pre-service teachers' intention to use technology. *Proceedings Ascilite Sydney 2010*.

Thurstone, L. L., & Chave, E. J. (1929). *The measurement of attitude: A psychophysical method and some experiments with a scale for measuring attitude toward the church*. Chicago: University of Chicago Press.

Tohidi, H., & Jabbari, M. M. (2012). The important of Innovation and its Crucial Role in Growth, Survival and Success of Organizations. *Procedia Technology*, *1*, 535–538. https://doi.org/https://doi.org/10.1016/j.protcy.2012.02.116

Tolboom, I. H. (2016). Organizational Impact of Digital Transformation: A survey based research to explore the effects of digital transformation on organizations. *Delft University of Technology*.

Tonder, C. Van. (2004). Organisational Transformation": Wavering on The Edge of Ambiguity. *SA Journal of Industrial Psychology*, *30*(3), 53–64.

Tuukkanen, V., Wolgsjö, E., & Rusu, L. (2021). Cultural Values in Digital Transformation in a Small Company. *Procedia Computer Science*, *196*(2021), 3–12. https://doi.org/10.1016/j.procs.2021.11.066

Ur Rehman, S., Bhatti, A., & Chaudhry, N. I. (2019). Mediating effect of innovative culture and organizational learning between leadership styles at third-order and organizational performance in Malaysian SMEs. *Journal of Global Entrepreneurship Research*, *9*(1), 1–24. https://doi.org/10.1186/s40497-019-0159-1

Ursachi, G., Horodnic, I. A., & Zait, A. (2015). How Reliable are Measurement Scales? External

Factors with Indirect Influence on Reliability Estimators. *Procedia Economics and Finance*, *20*(15), 679–686. https://doi.org/10.1016/s2212-5671(15)00123-9

van Meel, J. (2011). The origins of new ways of working: Office concepts in the 1970s. *Facilities*, *29*(9), 357–367. https://doi.org/10.1108/02632771111146297

Vey, K., Fandel-Meyer, T., Zipp, J. S., & Schneider, C. (2017). Learning & Development in Times of Digital Transformation: Facilitating a Culture of Change and Innovation. *International Journal of Advanced Corporate Learning (IJAC)*, *10*(1), 22. https://doi.org/10.3991/ijac.v10i1.6334

Westerman, G., Bonnet, D., & McAfee, A. (2014). *Leading Digital: Turning Technology Into Business Transformation*. Harvard Business Review Press titles.

Whelan, C. (2016). Organisational culture and cultural change: A network perspective. *Australian and New Zealand Journal of Criminology*, *49*(4), 583–599. https://doi.org/10.1177/0004865815604196

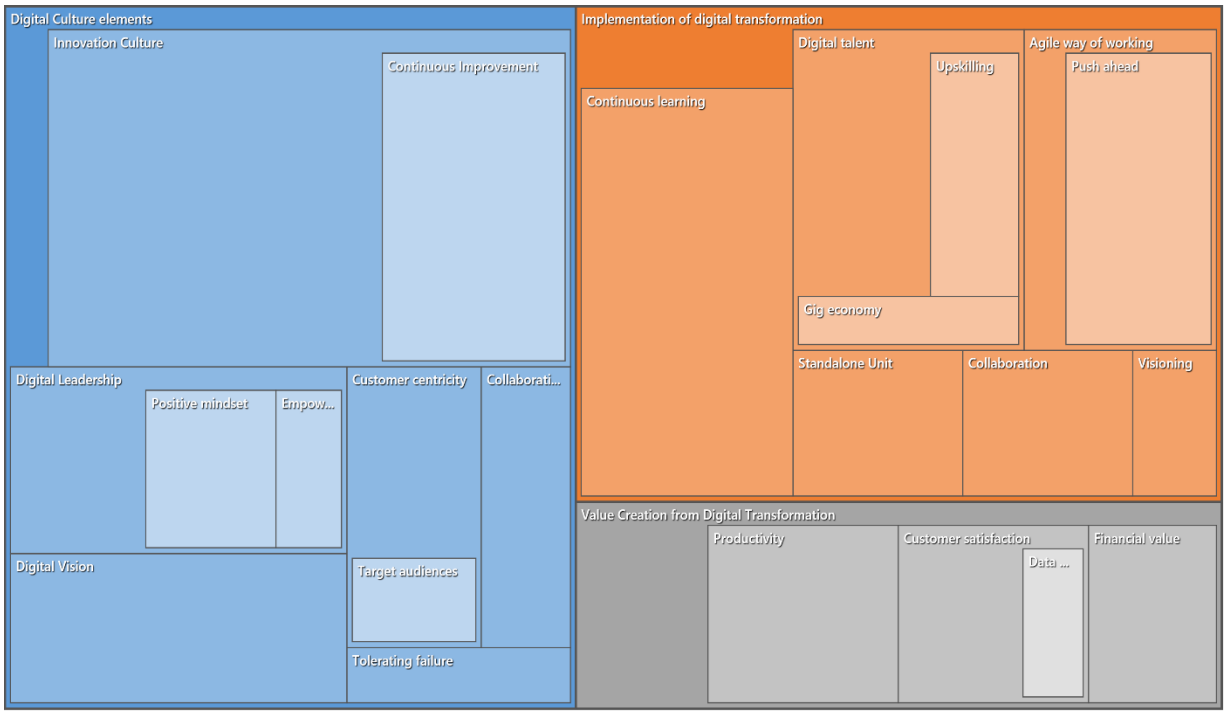
World Economic Forum. (2016). Digital Transformation of Industries - WEF White Paper. *WEF White Paper*, *January*, 4.

World Economic Forum. (2021). *Digital Culture : The Driving Force of Digital Transformation*. *June*, 1–62. http://www3.weforum.org/docs/WEF_Digital_Culture_Guidebook_2021.pdf

Yauch, C. A., & Steudel., H. J. (2003). Complementary Use of Qualitative and Quantitative Cultural Assessment Methods. *Organizational Research Methods*, *6*(4), 465–81.

APPENDICES

Appendix 1 - Hierarchy Chart for Qualitative Research Analysis



There are three main themes; 1) Digital Culture Elements, 2) Value Creation from Digital Transformation, and 3) Implementation of Digital Transformation, following the research questions.