MANAGING UNCERTAINTIES TOWARD SUSTAINABILITY OF SMEs IN MALAYSIA: DYNAMIC CAPABILITIES PERSPECTIVES

BY

ANAS AHMAD ABU JAISH

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International Islamic University Malaysia

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ABSTRACT

Sustainability issues have become critical problems plaguing SMEs worldwide. Undoubtedly, SMEs contribute largely to many countries' development; hence, they should take measures to ensure a sustainable competitive advantage. Based on this concern, this study was conducted to examine the effect of resources (tangible and intangible) on SMEs' sustainability in Malaysia. Dynamic capabilities (digitalisation and humanisation) have been identified as the mediating factor. At the same time, environmental uncertainties were considered as a moderating factor in the relationship between tangible and intangible resources and sustainability. This study applied a quantitative method, which was then supported by a qualitative method. For the quantitative data, questionnaires were distributed to respondents face-to-face and 338 responses were selected using a random sampling method and analysed using SPSS and AMOS. Based on structural equation modelling, the study found that tangible and intangible resources are significantly related to sustainability, and dynamic capabilities mediate the relationship between tangible and intangible resources and sustainability. In addition, environmental uncertainties play a moderate role in the relationship between tangible and intangible resources and sustainability. Qualitative data were then collected through interviews to support and explore the results obtained through this quantitative analysis. A total of 5 subject matter experts were involved in the interview. The result highlights the importance of practical resources and capabilities, learning new technologies and practices, enhancing dynamic resources, valuing tangible and intangible resources, and humanisation and digitalisation towards ensuring SMEs' sustainability. The results also support the mediation role of dynamic capabilities and the moderation of environmental uncertainties in the relationship between resource capabilities (tangible and intangible) and SMEs' sustainability. Furthermore, the study's findings assert that adopting proactive risk assessment frameworks can help stakeholders in Malaysian SMEs strengthen their support for sustainable growth by identifying and classifying potential financial, operational, market, and environmental risks by employing techniques like SWOT analysis and PESTEL analysis. It also helps by evaluating the probability and consequences of identified risks using qualitative and quantitative approaches, ranking risks according to their potential impact on business operations, creating and executing plans to reduce known risks, creating backup plans for critical risks to maintain business operations, keeping a constant watch on the risk environment and the effectiveness of mitigation strategies. The findings highlight the need to assist SMEs in implementing and managing the risk assessment framework by frequently updating the framework to align with changes in the business environment, delivering continual training on risk management and assessment methods to small and medium-sized enterprise (SME) owners and managers and providing support in the form of consultation and advisory services. The findings also suggest the benefits of establishing two-way communications between government agencies and Malaysian SMEs, sharing information and addressing the need for support, public trust, and business owners' awareness. Lastly, this study's findings can support SMEs and other related firms in ensuring sustainability and guide the government in developing policies related to SMEs and other related agencies.

Keywords: Tangible Resources, Intangible Resources, Dynamic Capabilities, Digitalisation, Humanisation, Environmental Uncertainties, Sustainability, Malaysian SMEs

خلاصة البحث

تعتبر قضايا الاستدامة بين الشركات الصغيرة والمتوسطة من بين المشاكل الحرجة التي يعاني منها العالم. ونظرًا لأن الشركات الصغيرة والمتوسطة تساهم إلى حد كبير في تنمية الكثير من البلدان؛ فيجب على الشركات الصغيرة والمتوسطة اتخاذ التدابير اللازمة لضمان ميزة تنافسية مستدامة. أجريت هذه الدراسة لفحص تأثير الموارد (الملموسة وغير الملموسة) على استدامة الشركات الصغيرة والمتوسطة. وقد تم تحديد القدرات الديناميكية (الرقمنة والإنسانية) بوصفها عوامل وسيطة، وعدم اليقين البيئي كعوامل معتدلة في العلاقة بين الموارد الملموسة وغير الملموسة والاستدامة. استخدمت هذه الدراسة الطريقة الكمية و مدعومة بطريقة نوعية. بالنسبة للطريقة الكمية، تم توزيع الاستبيانات على المستجيبين وجهاً لوجه. من الاستبيانات التي تم جمعها، تم اختيار 338 مستجيبًا باستخدام طريقة العينة العشوائية وتحليلها باستخدام **SPSS** و **AMOS**. بناءً على نمذجة المعادلات الهيكلية، وجدت الدراسة أن الموارد الملموسة وغير الملموسة مرتبطة بشكل كبير بالاستدامة، وأن القدرات الديناميكية تتوسط العلاقة بين الموارد الملموسة وغير الملموسة والاستدامة. بالإضافة إلى ذلك، تعمل حالة عدم اليقين البيئي على تعديل العلاقة بين الموارد الملموسة وغير الملموسة والاستدامة. لتعزيز واستكشاف النتائج التي تم الحصول عليها من خلال هذا التحليل الكمي، جمع الباحث البيانات عن طريق الأساليب النوعية من خلال المقابلات. شارك في المقابلات خمسة خبراء متخصصين في موضوع البحث. وأكدت النتيجة على أهمية الموارد والقدرات العملية، وتعلم الممارسات الجديدة، وتعزيز الموارد الديناميكية، وتقدير الموارد الملموسة وغير الملموسة، والإنسانية والرقمنة من أجل ضمان استدامة الشركات الصغيرة والمتوسطة. كما تدعم النتائج وساطة القدرات الديناميكية وتخفيف حالة عدم اليقين البيئي في العلاقة بين قدرات الموارد (الملموسة وغير الملموسة) واستدامة الشركات الصغيرة والمتوسطة. كما تصر النتيجة على أن تبني أطر تقييم المخاطر الاستباقية يمكن أن يساعد أصحاب

المصلحة في الشركات الصغيرة والمتوسطة الماليزية على تعزيز الدعم للنمو المستدام من خلال تحديد المخاطر المحتملة، مثل المخاطر المالية والتشغيلية والسوقية والبيئية، وتوظيف تحليل **SWOT** وتحليل **PESTEL** للتعرف على المخاطر وتصنيفها. كما يساعد ذلك في تقييم احتمالات وعواقب المخاطر المحددة باستخدام مناهج نوعية وكمية، وتصنيف المخاطر وفقًا لتأثيرها المحتمل على العمليات التجارية، وإنشاء وتنفيذ خطط للحد من المخاطر المعروفة، وإنشاء خطط احتياطية للمخاطر الحرجة للحفاظ على العمليات التجارية، والحفاظ على مراقبة مستمرة لبيئة المخاطر وفعالية استراتيجيات التخفيف. وتصر النتيجة أيضًا على تحديث إطار تقييم المخاطر باستمرار لمواءمته مع التغييرات في بيئة الأعمال، وتقديم تدريب مستمر لأصحاب ومديري الشركات الصغيرة والمتوسطة الحجم فيما يتعلق بأساليب إدارة المخاطر وتقييمها، وتوفير خدمات الدعم، بما في ذلك الاستشارات والمشورة، لمساعدة الشركات الصغيرة والمتوسطة الحجم في تنفيذ وإدارة إطار تقييم المخاطر. كما توصي بالاتصالات ثنائية الاتجاه بين الوكالات الحكومية والشركات الصغيرة والمتوسطة الحجم الماليزية، وتبادل المعلومات ومعالجة الحاجة إلى الدعم والثقة العامة ووعي أصحاب الأعمال. إن نتائج هذه الدراسة مفيدة للشركات الصغيرة والمتوسطة الحجم والشركات الأخرى ذات الصلة في ضمان الاستدامة كما تصلح أن تكون دليلا للحكومة في وضع السياسات المتعلقة بالشركات الصغيرة والمتوسطة الحجم والشركات المرتبطة الأخرى.

الكلمات المفتاحية: الموارد الملموسة، الموارد غير الملموسة، القدرات الديناميكية، التحول الرقمي، الإنسانية، عدم اليقين البيئي، الاستدامة، الشركات الصغيرة والمتوسطة الحجم في ماليزيا

APPROVAL PAGE

The dissertation of Anas Abu Jaish has been approved by the following:

_____
Rafiqa Bt Murdipi
Supervisor

_____
Dzuljastri Bin Abdul Razak
Co-Supervisor

_____
Norhayati Bt. Mohd. Alwi
Co-Supervisor

_____
Internal Examiner

_____
External Examiner

DECLARATION

I hereby declare that this dissertation is the result of my own investigations, except where otherwise stated. I also declare that it has not been previously or concurrently submitted for any other degrees at IIUM or other institutions.

Anas Ahmad Abu Jaish

Signature……..……..... Date 2/5/2025 ……

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I dedicate this dissertation to Allah, His prophet, my country, my wife, and my beloved parents.

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CHAPTER ONE

INTRODUCTION

1.1 INTRODUCTION

Achieving economic growth is an important objective for many countries both developed & developing countries. It also assists policymakers, economists, government organisations and non-government organisations, international organisations and SMEs, especially in a rapid global change landscape. The development of SMEs will promote and boost economic growth. Therefore, sustainable and developed SMEs play an important role, especially in developing countries (Organisation for Economic Co-operation and Development, 2024; International Monetary Fund, 2024 and World Bank, 2024). In 2024, various factors continue to shape the line of global economic growth such as technological advancements, globalization and sustainability.

SMEs typically account for 90% of the business and contribute to more than 50% of employment worldwide (World Bank, 2022). Besides, SMEs are considered as integral aspect of every economy (Rangarajan & Dutta, 2020). Thus, the sector has made tremendous contributions to the economic and social well-being of the people across several world countries, specifically to the underdeveloped, developing, and other emerging economies (Rangarajan & Dutta, 2020). In addition, it has the highest share in employment generation, nurturing entrepreneurial talent, and making a remarkable contribution to the gross domestic product (Tahir et al., 2018; World Bank, 2022).

Likewise, SMEs offer job opportunities to millions of people and catalyse skills upgrades amongst employees, promoting mobility in several countries by encouraging marginalised groups such as women, ethnic or religious minorities, and people with disabilities to create opportunities for participating in the economy (Rangarajan & Dutta, 2020). Thus, attaining sustainability for small and medium enterprises (SMEs) has played a significant role in the economic development of most developing countries (World Bank, 2022).

In Asia, SMEs constitute more than 96% of all its businesses by providing three out of four private-sector jobs within the continent (Asian Development Bank,

2024). Likewise, in the Asia-Pacific region, SMEs encompass more than 98% of number of enterprises, which in turn contribute about 17% to the national GDP in low-income countries such as India, with about 40 to 50% across higher-income countries like Singapore and Malaysia (Asad, 2024). SMEs tend to generate the highest number of employment opportunities by employing more than 50% of the workforce in most Asian countries (Asad, 2024).

Moreover, SMEs are said to align with the paradigm of consumer expectations across the Asia Pacific, the Middle East, as well as Africa region (Salil, 2023). Thus, enhancing productivity has become the main concern amongst SMEs worldwide. In the study, sustainability is defined as the ability to survive or support a process continuously. In business situations, sustainability seeks stability so that it will survive for the short and long term. As the global community becomes aware of the social and environmental impacts of businesses, SMEs need to prioritise sustainability. However, many business leaders have yet to recognize the importance of sustainability as a sales driver for many businesses worldwide (Salil, 2023).

In addition, SMEs contribute 98.5% to the Malaysian economy and are considered the main contributor to the Malaysian economy (Yuena & Nga, 2020). Malaysian SMEs still face many difficulties in various sectors, such as manufacturing, food, services, etc. According to previous studies, many studies have raised various vital issues such as financial issues, governance issues, skills and knowledge, supply chain issues, and uncertainties such as natural disasters, politics, economics, digitalisation, humanisation, and sustainability (Levy & Powel, 2004; Jones et al., 2005; Parker & Castleman, 2007; Beheshti & Salehi-Sangari, 2007; Hashim, 2008; Cui et al., 2008; Dharmalingam & Kannabiran, 2011; Duan et al., 2012). For example, the manufacturing sector for SMEs has struggled to adopt Industry 4.0, as reported by Frank, Dalenogare, and Ayala (2019).

Uncertainty is one of the main issues faced by SMEs such as the recent COVID-19 pandemic. Uncertainties are defined as the inability to recognize or expect environmental information and changes. Uncertainty situations in a business environment could happen when decision-makers or managers of the business can't control and are not able to respond efficiently (Dwirandra & Astika, 2020). Many studies on strategic management have highlighted the importance of this concept (Lawrence and Lorsch, 1967; Milliken, 1987; Duncan, 1972; Chintakananda & McIntyre, 2014; McIntyre & Srinivasan, 2017). In addition, environmental uncertainty

is defined as a concept where managers have no enough information about the organisational environment (Vecchiato, 2012). This shortage of information leads to the instability of the companies. In this regard, uncertainties can occur in a firm's environment when the firm's decision-makers cannot accurately predict the environment and its components, such as changes in technologies and attitudes (Milliken, 1987; Vecchiato, 2012). Lengnick-Hall et al. (2011) and Linnenluecke (2017) have recommended that companies should be ready for any future environmental changes or uncertainty by having an effective response to any specific situations and obtaining sufficient resources that improve organisational sustainability.

The recent COVID-19 pandemic has led to uncertainties that are negatively affecting most micro-enterprises, SMEs and other businesses worldwide. A survey in 2020 identified that 69.9 percent of SMEs in Malaysia lost half of their incomes (Annuar, 2020). In addition, many Malaysian SMEs postponed or cancelled their projects due to the Movement Control Order (MCO) that caused restrictions on face-to-face dealings, limited supplies due to the closure of operations and low sales, which led to less cash flow for the businesses. This is one of the examples of uncertainties that businesses need to face and be able to cope with for them to survive in the market. Another problem is that some SMEs are unable to obtain supplies as many suppliers have temporarily ceased their operations.

As a result, some SMEs have the biggest worry about cash flow stemming from low sales (Annuar, 2020). Furthermore, the Malaysian Economic Research Institute (MIER) stated that COVID-19 causes unemployment for 2.4 million employees (Amir, 2020). Therefore, Bank Negara Malaysia (BNM) has distributed stimulus packages to support SMEs' cash flow and sustain their business operations. This kind of assistance given by government and non-government institutions to SMEs indicates that SMEs rely more on external support rather than trying to manage the uncertainties during turmoil. Hence, SMEs need to adapt to risk assessment during unstable situations. For example, Auzzir et al. (2018) highlighted the need for SMEs to establish a proactive and systematic approach to handling risk in order to minimise the related losses.

Nowadays, the world is changing rapidly, and all aspects of human life are becoming more digitalized. Digitalisation is becoming massive and extreme, thus affecting human beings in both positive and negative ways. Digitalisation is defined as something converted from a traditional process or system to a technological system

(El-Masri, 2018). It is a concept where the industries moved from standard technology to an advanced level of innovation called digital technology (Gobble, 2018). At present, digitalisation has become a highly attractive concept in many segments (banks, governments, policymakers, academics, businesses, experts, etc.) (Gilbert, 2023). It seems that due to the inability to adapt to this rapid movement, i.e., digitalisation, individuals and businesses will face many difficulties and be left behind relative to their counterparts in the market (Luftman et al., 1993 and Trenkle, 2020). Digital transformation is one of the agendas for each organisation to move forward and be competitive in the market (Jia et al., 2024, Fedyunina et al., 2024 and Oyewole et al., 2024). Most companies believe that digital transformation is the only way to achieve their goals, growth and success. However, even though digital transformation (Musyaffi, 2024). For example, in 2018, the World Economic Forum ranked cyber-attacks and data fraud as the top global and environmental risks.

The International Monetary Fund (IMF) reported that digitalisation, including product trading, online platforms, and other sharing segments, has led to various challenges, such as workforce and many other technology-related skill gaps (IMF, 2018 & Smit, 2018). Many companies are unable to identify the required digital competencies from their employees to fill the competency gap (Smit, 2018). The rapid explosion of digital technologies such as big data, blockchain, cloud computing, machine learning, IoT, and mobile applications further proves this. Other issues that are related to digitalisation such as lack of knowledge, high limitations of advancements and developments with Industry 4.0, and a lack of qualified professionals, especially in developing economics (Rajnai & Kocsis, 2017; Kergroach, 2017; Antikainen et al., 2018). In addition, Financial resources and other resources among various businesses lead to internal failure of digital change (Davies, 2015). Similarly, Ali (2019) has highlighted that many digital transformation journeys fail and have poor execution since they require abundant time, immense cost, and highly skilled efforts.

Apart from the pressure towards digitalisation, the need for more human contact, value-added services, and direct communications are also becoming of strong interest and concern. Humanisation refers to the idea of focusing on value creation by improving support structures, advisory systems, and knowledge sources. It aims to increase awareness and provide better support to individuals, communities, and the broader ecosystem (as outlined in a 2017 strategy paper by Bank Negara Malaysia).

Human beings are now insisted on by the digital revolution, which interrupts the nature of human life, such as the interaction with the environment. For instance, people tend to use and rely more on the Global Positioning System (GPS) to direct where to go rather than using traditional maps (Anderson, 2018). Such technology has increased people's reliance on technology and causes them to lose their human values, personal capabilities and inner strengths.

Anderson (2018) further commented that humans in the Western world become intertwined with and rapidly reliant on technology. These challenges reveal the need to consider another aspect of the development and growth of businesses and human life in general. Kankainen (2017) said that digitalisation could enable us to solve fundamental issues if implemented correctly from a business perspective. Kankainen also added that digitalisation could change everything, but it should be regarded as equivalent to Humanisation. Making human actions requires different thinking models. Therefore, Humanisation is one of the central aspects of business dealings and operations.

The importance of maintaining a balance between these two paradigms (digitalisation and humanisation) has been highlighted by Cognizant and ReD Associates (2016). The study indicated that future winners in the digital economy should adopt strategies that put technology in the background and focus on people first. According to this study, when priority and strong focus are given to customer's real needs first by satisfying them, reducing operational costs, and creating a sustainable position in the market, developing technological solutions will positively impact society (Cognizant and ReD Associates, 2016). Therefore, acknowledging the importance of balancing these two approaches, this study focuses on examining the digitalisation and humanisation aspects of the business operations of SMEs in Malaysia.

Such an initiative is undertaken with regard to the rapid environmental changes and uncertainties, particularly on resource capabilities and performance sustainability of SMEs in Malaysia. This chapter provides the problem statement, aim and objectives, research questions, scope of the study, operational definitions, and organisation of the study. Past studies have emphasised the importance of tangible resources in ensuring business sustainability. For instance, Musara & Razafiarivony (2024), Surajit (2023), and Mustaruddin (2018) argued that the availability of tangible resources stands as a great opportunity for SMEs to ensure a sustainable competitive

advantage and overall success of their business. Likewise, it has been observed that access to more intangible resources often increases a firm's level of productivity and SME sustainability in general (Helena & Anna, 2020; Madu et al., 2023). In addition, studies have highlighted the vital role of environmental uncertainties in determining SMEs' sustainability. Yasmine & Jiafei (2022) and Ali & Rohaida (2023) posited that environmental uncertainties are said to be influential towards SMEs sustainability. This implies that SMEs' ability to withstand environmental changes or challenges usually enhances their competitive advantage and increases productivity.

While there is an abundant of studies highlighting the important role of tangible resources, intangible resources, dynamic capabilities (digitalisation and humanisation), and environmental uncertainties towards ensuring SME sustainability across the world and Malaysia in particular, studies investigating these variables in one model appear to be rare in the existing literature. Thus, to fill this gap, this study examines the mediating effect of dynamic capabilities (digitalisation and humanisation) and the moderating effect of environmental uncertainties in the relationship between tangible resources, intangible resources and sustainability within the context of Malaysian SMEs.

1.2 PROBLEM STATEMENT

SMEs are regard as engines for sustainable economic growth in both developing and developed countries across the globe (Baldwin, 2016). Also, SMEs are seen as a tool for addressing several development issues, especially in developing nations, such as poverty, inequality, and unemployment among youth (Asare et al., 2015). Hence, the downfall of SMEs has remained relatively high in several countries, considering SMEs' lack of survival in the global market (Santi et al., 2024).

In addition, most SMEs often find achieving sustainability (67%) as their major challenge (Claire, 2022 and J Nair et al., 2024). Asian countries face severe issues of lack of survival or sustainability. Compared with their Western counterparts, SMEs in Asia face several challenges regarding business sustainability (Asia, 2021 and Clemente-Almendros et al., 2024). Despite the various grants and programs implemented by the government to boost the performance of SMEs in Malaysia, a large number of SMEs are still faced with a downfall and are incapable of sustaining the market competition (Sylvia et al., 2020). Again, the estimated rate of failure

amongst SMEs is 60%, indicating that they are faced with serious issues preventing them from staying competitive within the market (Sylvia et al., 2020).

Despite the enormous diffusion of SMEs, SMEs still stumble in many facets. Based on previous studies, there are many issues and difficulties raised and discussed by researchers, including financial matters, skills and knowledge, governance, supply chain, globalization, trade barriers (Antikainen et al., 2018; Kergroach, 2017; Rajnai & Kocsis, 2017; Sung, 2018; Følstad and Kvale, 2018; Ghobakhloo, 2018; Komulainen and Saraniemi, 2019; Lin et al., 2018) as well as recent highly debated issues pertaining to uncertainties with regards to economic, politic, natural disasters, stability, sustainability, digitalisation, values, and Humanisation(Ali, 2019; Swarnapali,2017; EtheRaj et al., 2018; Kasri,2018).

Resource Capability Challenges

Issues pertaining to resources of small businesses have been predominantly highlighted in the literature, which created the interest of this study to look into the matter of resources. According to Radulovich (2008), researchers have a limited understanding of the benefits of intangible resources and how companies could obtain a competitive advantage from such resources. In addition, there are also arguments in the literature that most of the studies do not specifically identify the resources. Malaysian SMEs face critical difficulties regarding their tangible and intangible resources. In this study, the main issue is limited access to financing and technological advancements, which demote their capacity to be competitive effectively in a global market. In addition, most SMEs lack a skilled labour force and effective management techniques, resulting in their growth potential.

Most SMEs in Malaysia possess good resources but are not utilized optimally. Many SMEs rely on external support, whether through government or non-government organisations, rather than concentrate on improving their internal resources. This approach prevents them from being more innovative and adaptable to environmental and market changes. This dependence also leads to a lack of being more dynamic and adapting quickly to market conditions and uncertainties. Moreover, sustaining competitive advantage rapidly becomes less due to not fostering internal capabilities, risking their economic growth and contribution. This static approach also makes SMEs face the difficulty of being reactive, not proactive. This creates a cycle where SMEs do not fully engage in resource development and strategic planning.

The Challenge of Leveraging Digitalisation for SMEs' Sustainability

With the rapid improvement and growth of technology in various fields such as Industry 4.0, Cryptocurrency, FinTech, E-payment, E-commerce, online marketplace, and others, SMEs must capture these technological developments to compete in the market efficiently. However, due to diverse issues and challenges, SMEs struggle to emerge with digitalisation. For instance, there is still a lack of skills and knowledge where SMEs need to identify suitable technologies, estimate the right digital competencies for future careers, reduce unemployment issues in I.T., and enhance the capabilities of labour skills, education levels, and capital expenditure requirements (Kergroach, 2017; Antikainen et al., 2018; Smit, 2018; Rajnai & Kocsis, 2017).

In addition, financial issues still exist in integrating digitalisation among the SMEs. SMEs' challenges in this matter can be related to issues. For example, there are cryptocurrency issues (market manipulation, fraud, liability, consumer and data protection, financial crimes, taxation policy, and money laundering) At the same time, disrupting the traditional financial system (liquidity issues, economic and monitoring problems) is one of the main difficulties that disrupt financial institutions and others.

SMEs are facing similar issues. Although SMEs receive financial assistance from the traditional financial system, due to the high cost and requirements from financial institutions, they move to access non-financial institutions that can fulfil their financing needs (Hakeem, 2019). Besides, the adoption of a new digital system has become one of SMEs obstacles such as insufficient capital, lack of resources, size, lack of technology capability, and financial literacy issues (Nemoto & Yoshino, 2019; Smit, 2018; Antikainen et al., 2018). Governance is also crucial in SMEs, such as privacy issues (confidential personal data and financial losses), which might damage reputation if incorrectly handled (Weigel et al., 2020).

The Challenge of Leveraging Humanisation for SMEs' Sustainability

Despite the rapid growth of technology and digitalisation, values and Humanisation have also become crucial for SMEs' success. Creating values, support, and advisory systems for SMEs could significantly improve communities, economics, and the environment. Among the initiatives focusing on human values are Value-Based Intervention (VBI), Corporate Social Responsibility (CSR), and Sustainable

Development Goals (SDGs). Despite their noble objectives of bringing value to human beings, these initiatives face lots of challenges in the implementation part (Roshayani et al., 2018; Ratajczak, M; 2016; Kamphof et al., 2015; Ban Ki, 2016).

Humanisation requires a holistic approach for a particular organisation, whereby appropriate changes in people's mindset are needed (stakeholders such as staff, management, board of directors, employers, employees, financial institutions, agencies, etc.). Transforming the mindset of SMEs and other related stakeholders (financial institutions, suppliers, customers, regulators, and others) from profit maximization to value creation is considered the main challenge (Kasri, 2018). Other challenges include a lack of awareness of humanisation initiatives such as CSR, VBI and SDGs in terms of knowledge and practices (Ratajczak, M 2016).

In addition, from the knowledge and skills aspect, SMEs still have difficulties receiving financial support due to the lack of financial literacy and inadequate communication within an organisation (Nemoto & Yoshino, 2019). Thus, unbalanced issues between humanisation and digitalisation are clearly specified by John Marshall (2016), who indicated that the studied digital leaders were not responding well to the need for a human touch, which includes caring and listening to customers and other customer-related attributes.

Environmental Uncertainties

As digitalisation and humanisation issues become crucial, the uncertain situation may directly or indirectly impact SMEs and assign additional weight to the existing challenges. The digitalisation and humanisation issues have been thoroughly debated by Ali (2019), Swarnapali (2017), (EtheRaj et al. (2018) and Kasri (2018). To date, measures taken to handle uncertainties and challenges are considered temporary and reactive rather than proactive. For instance, during the recent Covid-19 pandemic, most businesses regard the need to move their business activities into digital platforms as a temporary solution and tend to revert to their regular operations when the challenges are under control and stabilised.

More than 70% of SMEs struggle and are prone to failure and bankruptcy due to the Covid-19 pandemic (Annuar, 2020). This raised concerns about SMEs' sustainability in their operations. Most businesses are exposed to negative effects in either the short or long-term sustainability period. In line with this matter, the OECD (2020) outlined various challenges faced by SMEs recently due to the pandemic. This

includes millions of workers losing jobs, shortage of supplies (Smith-Bingham & Hariharan, 2020; Sneader & Singhal, 2020), cash flow problems, discontinued business operations, as well as disruption to future growth and expansion (Wahyudi, 2014; Craven et al., 2020; Smith- Bingham & Hariharan, 2020). Major industries affected are tourism, travel-related industries, hotels, restaurants and so on (Segal & Gerstel, 2020). Many projects are postponed or cancelled because of MCO, as firms can no longer have face-to-face meetings. A similar situation was experienced during the financial crisis 2008 (Ali and Hatta, 2013). These turmoils have led to the failure and instability of many SMEs that are highly dependent on financial assistance and support from others, especially the government and financial institutions (Ahmad et al., 2020).

Regarding risk-related issues for SMEs, De Araújo Lima et al. (2020) observed the lack of risk management processes and control mechanisms amongst SMEs, which demands further research and discussion. This situation has been further proven by a study done in Malaysia by Auzzir et al. (2018). Auzzir et al. studied the impact of natural disasters on Malaysian SMEs. They strongly highlighted the need for Malaysian SMEs to establish a proactive and systematic approach to handling risk to minimise related business losses. Having such measures will assist Malaysian SMEs in developing potential strategies for facing and managing uncertainties.

1.3 AIM AND OBJECTIVES

The study aims in managing uncertainties towards the sustainability of Malaysian SMEs, by examining the resource capabilities (Tangible and Intangible) of SMEs in handling uncertain environments considering the relative impact of dynamic capabilities (digitalisation and humanisation) and their efforts towards coping with the unstable market while at the same time maintaining sustainability. Therefore, the study focuses on four specific objectives to achieve the main objective of the study as follows:

1. To examine the effect of resource capabilities (Tangible and Intangible) on Malaysian SMEs' sustainability.
2. To examine the effect of dynamic capabilities (digitalisation and Humanisation) on Malaysian SMEs' sustainability.

3. To examine the mediating effect of dynamic capabilities (digitalisation and Humanisation) between resource capabilities (Tangible and Intangible) and Malaysian SMEs' sustainability
4. To examine the moderating effect of environmental uncertainties between resource capabilities (Tangible and Intangible) and Malaysian SMEs' sustainability.

1.4 RESEARCH QUESTIONS

1. Do resource capabilities (Tangible and Intangible) contribute significantly to Malaysian SMEs' sustainability?
2. Do dynamic capabilities (digitalisation and Humanisation) contribute significantly to Malaysian SMEs' sustainability?
3. Do dynamic capabilities (digitalisation and Humanisation) mediate the relationship between resource capabilities (Tangible and Intangible) and Malaysian SMEs' sustainability?
4. Do environmental uncertainties moderate the relationship between resource capabilities (Tangible and Intangible) and Malaysian SMEs' sustainability?

1.5 SCOPE OF THE STUDY

This study covers humanisation and digitalisation concepts as tools for striking a balance in managing uncertainties for SMEs. Risk assessment of SMEs from both sides (humanisation and digitalisation) will be covered in this study. This study will assist Malaysian SMEs in identifying the possible solutions for their sustainability, particularly in managing the environmental uncertainties sufficiently throughout the digitalisation and humanisation movement and development. This includes developing a proactive and systematic risk assessment tool that could assist Malaysian SMEs in making better strategic planning and decisions. This study's respondents are limited to SMEs (experts, CEOs, managers, employees, and others) located in different states of Malaysia. Sustainability and competitive advantages are used interchangeably. The conceptual framework of this study is based on the Resource-Based View (RBV), theory and focuses on environmental uncertainty and dynamic capabilities.

1.6 OPERATIONAL DEFINITIONS

1.6.1 Tangible Resources

Tangible resources are considered as those resources in a firm which can easily be seen, quantified, and touched (Gaya, 2017). In this study, tangible resources include financial resources, physical resources, organisational resources, and technological resources.

1.6.2 Intangible Resources

Intangible resources are described as non-measurable assets which cannot be touched and are needed by a firm to achieve its set objectives (Helena & Anna, 2020). In this study, intangible resources include human resources, innovation resources, and reputation resources).

1.6.3 Dynamic capabilities

A company can integrate, build, and reconfigure internal and external competencies to attain rapid environmental changes. So, it refers to a firm's ability to achieve competitive advantages in adapting to market changes (Leonard- Barton, 1992).

Digitalisation is defined as something converted from a traditional process or system to a technological system (El-Masri, 2018). It is a generic concept of transforming industries from standard technology into digital technology and innovation (Gobble, 2018).

Humanisation is a concept of moving towards value creation and concentrates more on developing the support system, advisory system and knowledge providers by enhancing the awareness and support to individuals, communities, and the ecosystem (A strategy paper issued by Bank Negara Malaysia, 2017). Also, Humanisation is to engage and emerge with actions and activities involved with human beings (Hemingway A., 2012). It is about an experience that is relevant to feelings, mood, emotions and anything related to human beings.

1.6.4 Environmental Uncertainties

Environmental uncertainties are described as the uncertainty situation of a business environment (Dwirandra & Astika, 2020). In this study, Environmental uncertainty is seen as a business owner's or manager's inability to recognise the environmental information (Vecchiato, 2012). Vecchiato added that uncertainty could happen when

environmental changes (technology changes) cannot be recognised or predicted by the decision-makers of the firms. Linnenluecke (2017) stated that uncertainty could be controlled if the companies can respond effectively to any future environmental changes.

1.6.5 Sustainability

Sustainability is the management of social, environmental, and financial concerns to ensure responsible and ongoing success; social, environmental, and financial concerns are the main three sustainability components (Das & Dutta, 2019; Amini and Bienstock, 2014). Sustainability requires the business to be increasingly profitable as well as adaptive to environmental changes (Linnenluecke, 2017).

Competitive advantage: it is a concept that refers to the company's performance associated with market competition. The advantage is about distinguished approaches that companies use to compete with others by creating new value and something unique (Navarro-Garcia et al., 2018).

1.7 ORGANISATION OF THE STUDY

This research contains five chapters: Chapter One introduces the introduction, problem statement, aim and objectives, research questions, and scope of the study. The second chapter explains the literature reviews on digitalisation and humanisation issues and challenges and their impact on Malaysian SMEs. They are followed by the third chapter, which discusses methodologies, including data collection and sampling methods. The quantitative method, with the support of the qualitative method, is employed using SPSS software and interviews. Chapter four focuses on explaining the analysis of the data obtained from both questionnaires and interviews. Chapter five highlights and discusses this study's findings by relating them to the research objectives and findings of the previous studies. It also presents a summary of the thesis and concludes with a brief discussion of the findings and recommendations for further research.

CHAPTER TWO

LITERATURE REVIEW

2.1 EMPIRICAL LITERATURE

This chapter focuses on discussions about empirical literature related to the study. It starts with a critical discussion on Industry 4.0 and digitalisation and its impact, the role of digitalisation on SMEs, humanisation and its impact in delivering value-added services, the role of humanisation in SMEs, tangible and intangible resources and a research gap. This chapter ends with discussing the theoretical framework as well as developing the hypotheses.

2.1.1 INDUSTRY 4.0 AND DIGITALISATION

The German government coined the phrase "Industry 4.0" to aid industrial companies (Sung, 2017). It is closely related to automation, industry processes, and information technology (Cardin et al., 2017; Kusiak, 2018). According to Bag et al. (2018), Industry 4.0 gives machines the ability to design, develop, and generate goods and services on their own without the need for human intervention. Industry 4.0 expedites client services and improves production procedures. It has been widely implemented and affects a great deal of companies and enterprises globally, including in Germany and China. It was reported that the Chinese government's 2025 plan is to focus more on accelerating manufacturing through digitalisation and technology (Bag et al., 2018).

Furthermore, the United States, Japan, France, and a few other nations try to adapt to this new mainstream, according to Bag et al. (2018). Nonetheless, the idea of Industry 4.0 aims to come from diverse economies in developing nations in order to comprehend, maintain, and create advantages through technological advancements (Hopali and Vayvay, 2018). The adoption of novel strategies can open doors to improving the production process through integration with the industrial setting. According to Stock and Seliger (2016), gadgets have the potential to function in a decentralized and self-organizing manner when connected, hence impacting physical systems. As a result, a new mechanism is created that enables the machines to interact with one another and achieve excellent production performance without the requirement for physical interaction (Bag et al., 2018).

On the other hand, this new Industry 4.0 is not a shortcut for timely transformation. It can be deployed, but it will face a few challenges due to financial, technological, and strategic limitations (Luthra and Mangla, 2018). For instance, companies face a few difficulties in adopting Industry 4.0 due to the lack of affordable capacities and supply chain networking weaknesses. Besides, few firms have difficulties identifying suitable technologies and have fewer experiences in dealing with those technologies. This leads to a negative impact on economic sustainability by using the wrong technology selections (Sung, 2018).

In addition, a lack of IT knowledge and skills would result in a significant loss of employment opportunities, particularly for marginalized populations and developing countries like Africa. This could have a negative impact on sustainability (Bag et al., 2018). The pressing need for integrated nations to provide a comparable system of products and services is one of the social and economic challenges. This is evident in Brazil which has embraced Industry 4.0 and adapted its economy to the technological approach; yet, the lack of competencies in its industrial sector has resulted in a number of crises and losses, making it difficult to invest in technology (Tortorella and Fettermann, 2018). In this regard, the scale of the full implementation of Industry 4.0 is still unknown, and disparities in the advancement of various countries affect the gaps in technological advancement, labour skills, educational attainment, and capital expenditure needs (Luthra and Mangla, 2018; Liboni et al., 2019; Xu et al., 2018; Tortorella and Fettermann, 2018).

As a result, there is a chance that parties embracing industry transformation may experience risk diffusion that has a detrimental impact on different aspects of businesses (Tupa et al., 2017). Industry-wide digitalisation carries a risk, which means that new hazards and uncertainties like viruses, cyberattacks, data loss, privacy issues, and other things could materialize at different times. They can end up being a target for scammers and hackers. To mitigate such hazards, new risk management techniques must be created and put to practice (Tupa et al., 2017). Industries that use effective risk management or safety systems provide strategic and all-encompassing protection for their managers, supervisors, employees, and owners (Malik and Holt, 2013).

2.1.1.1 Digitalisation and its Impact

Digital technologies have had an immense impact on the global economy, which has been expanding quickly in a number of ways during the past 12 years (Bienhaus and Haddud, 2018). Digital is anything related to electronic signals of '0' and '1', (El-Masri, 2018)/ The initial phase of digital transformation is digitization. It refers to the process of transforming manual, analogue information into digital data. This includes taking a digital copy of a picture (Schallmo & Williams, 2018). It connectively transforms innovations in technology. The business's roles and processes are then ready for digitalisation because of digitalisation. This implies that networks like the Internet, which are acknowledged as comprehensive information systems, can be employed as new systems of technical principles through digitalisation (Li, Merenda, & Venkatachalam, 2009). Another definition of digitalisation is the digital revolution of the economy and society. It replaces the standard technologies of the industrial age with digital technologies and digital innovation.

Moreover, digitalisation can be used as a strategy to shift from a human-centred design perspective to a new business model. (Ghobakhloo, 2018; Følstad and Kvale, 2018; Lin et al., 2018; Komulainen and Saraniemi, 2019). It involves converting from physical to electronic formats (Gobble, 2018). Digitalisation has been recognised as one of the key strategies that helps many organisations and corporations throughout the world succeed in today's technology-driven climate. An increasing number of organisations have created new business models by adopting digital endeavours. They have adjusted their traditional processes to develop new models to serve customers faster and more efficiently (Dellermann et al., 2017). To increase client interest, companies such as Amazon, Alibaba, eBay, and others employ a variety of digital platforms and compete by varying their designs and presentation methods (Hänninen et al., 2018).

Furthermore, as noted by Molinillo and Japutra (2017), digital platforms can act as a significant middleman between suppliers and customers and can manage the supply chain from start to finish. Dealer satisfaction can increase, and expenses and time can be saved as a result. For marketing goals, some SMEs have also engaged in technical and digital development. While digital transformation offers numerous benefits, there are additional obstacles associated with its implementation. For example, the World Economic Forum (2018) lists cyberattacks and data fraud as the top global hazards, along with environmental threats. Cyber-attacks can have

detrimental impacts such as financial losses brought on by the leak of private information.

The International Monetary Fund (IMF) has reported digitization has affected conventional product retail and other traditional platforms. It could lead to the redundancy of the workforce. Another pertaining challenge is skill shortages. According to Smit (2018), many companies are unable to determine the skill upgrades of their personnel, which makes it difficult to estimate the digital competencies needed for future employment. In this regard, digitalisation, especially in developing nations, faces significant challenges including a lack of expertise, a shortage of skilled workers, and other barriers to industry 4.0 improvements and developments, (Rajnai & Kocsis, 2017; Kergroach, 2017; Antikainen et al., 2018).

Additionally, Davies (2015) argued that a lack of funding and other resources among numerous businesses contributes to the failure of internal digital transformation. According to Ali (2019), many digital transformation initiatives fall short and are poorly carried out. He further highlighted that digital transformation calls for a great deal of money, time, and highly skilled labour (Ali, 2019). Undoubtedly, digitalisation efforts have encountered different obstacles which have become the biggest stumble block in digital strategies adoption. The most disruptive factors impeding technology advancements, for instance, are quick execution, hyper-awareness, and a shortage of highly skilled leaders. Nonetheless, expanding the product's digital applications can enhance its lifespan (Stankovic et al., 2017). Ziyadin et al. (2019) concluded that the digital transition is tremendously complex and requires substantial advancements in technology.

Financial institutions, such as banks, allocate all available digital technology to improve service quality, strengthen customer-bank relationships, and advance the banking system (Khanboubi & Boulmakoul, 2018). To fulfil the expectations of customers and new entrants, financial institutions must digitize their services and products. This includes reducing costs, enhancing service quality, and providing appealing new financial services (The Economist, 2016,). Financial institutions, meanwhile, feel that their industry is vulnerable to increased competition and investment in order to offer cutting-edge, novel business models that have a direct influence on their customers. According to KPMG's 2017 research, 95% of banks feel that their operations are in danger because of Fintech's increasing investments, which totalled $8.4 billion in Q2 2017. To reduce the risks associated with digitization across

entire industries, risk management is therefore essential for banks, large corporations and SMEs.

2.1.1.2. The Role of Digitalisation in SMEs

SMEs play a major role in the economic expansion of the nation. According to Das et al. (2019), they have stimulated the growth of the Gross Domestic Product (GDP), created jobs, and increased the import and export of goods and services. Small and Medium Enterprises (SMEs) in Malaysia are defined according to the total sales and number of employees. As classified by SMECORP Malaysia, SMEs in the manufacturing sector are companies with full-time employees of less than 200 employees and annual sales of less than RM 50 million, and SMEs in services and other sectors are the companies with full-time employees of less than 75 employees and annual sales of less than RM 20 million (Table 2.1).

Table 2.1 Definition of SMEs by Category

	Sector			
	Manufacturing		Services and Other Sectors	
Classification	Annual Sales	Number of Employees	Annual Sales	Number of Employees
Micro	<RM 300,000	<5 people	<RM 300,000	<5 people
Small	RM 300,000 < RM 15 million	From 5 to < 75 people	RM 300,000 < RM 3 million	From 5 to < 30 people
Medium	RM 15 million < RM 50 million	From 75 to < 200 people	RM 3 million < RM 20 million	From 30 to < 75 people

Source: SME Corp. Malaysia 1

In this regard, small and medium-sized enterprises (SMEs) have been playing a major role. These enterprises have drawn the attention of economists worldwide for their enormous and significant roles in promoting economic activity in multiple areas, such as creating jobs for the unemployed and supplying the goods and services that the community, particularly low-income communities, needs. SMEs contribute to

building economies in industrialised nations by producing intermediate commodities that big businesses require from overseas (Mohammad, 2012). Additionally, the growth of fintech supports social cohesion and equity for a variety of businesses.

On the other hand, even though they can afford higher interest rates, many SMEs are still experiencing liquidity problems and are unable to access funding within the current banking system. For instance, 15% of SMEs that are registered in India are reported as 'sick' or facing operational or financial difficulties. Hussein et al. (2018) found that organisational, environmental, and technological factors significantly affect SME digitalisation activities. In this light, due to the high cost of adoption and inadequate planning, a small number of SMEs may not be able to utilize digital technology. The inability of SMEs to digitize is also impeded by a lack of capital, knowledge, resources, size, and technological capacity. (Jones et al., 2005; Levy & Powel, 2004; Beheshti & Salehi-Sangari, 2007; Parker & Castleman, 2007; Dharmalingam & Kannabiran, 2011; Hashim, 2008; Cui et al., 2008; Duan et al., 2012).

Despite the difficulties, the immersive deployment of FinTech calls for SMEs to increase their financial literacy to take advantage of more opportunities presented by FinTech innovation. (Nemoto & Yoshino, 2019).According to Tan et al. (2008), the relative complexity, benefit, security, and compatibility elements that influence the adoption of internet-based ICT also indicate that internet-based technology provides a cheap cost for customers' communication. Furthermore, knowledge technology has a big impact on how SMEs share knowledge (Eze et al., 2013). SMEs' performance is enhanced by these technologies in several ways. Movements toward the adoption of blockchain systems, particularly Bitcoin, have generated a lot of discussion outside of Fintech. Hence, as asserted in Iibiz (2019), SMEs should think about whether using blockchain technology in their operations is feasible provided they have a well-defined structure and strategy. Poor planning could lead to a significant loss of personnel and financial resources.

The unpredictable climate that firms are operating in exacerbates the acknowledged difficulties with technology adoption. The global Covid-19 pandemic, for instance, has had a detrimental impact on SMEs, oil and gas firms, and microenterprises. A study by Annuar in 2020 documented challenges faced by SMEs in Malaysia. For example, 69.9 per cent of SMEs in Malaysia lost half of their income during the Movement Control Order (MCO). This is mainly due to the unavailability

of face-to-face dealings during the MCO period, causing many projects to be cancelled and put on hold.

Another issue is that a lot of suppliers have temporarily closed, making it difficult for small SMEs to receive supplies. As a result, low sales-related cash flows are a major concern for several SMEs. Furthermore, it was noted by the Malaysian Economic Research Institute (MIER) that 2.4 million Malaysian workers are thought to be unemployed as a result of COVID-19. As a result, Bank Negara Malaysia (BNM) has allotted stimulus packages to help SMEs maintain their business operations and boost their cash flows.

2.1.2 HUMANISATION AND ITS IMPACT IN DELIVERING VALUE-ADDED SERVICES

Interacting with people is the key to becoming humanized. This often entails the kind of things that are necessary to bring human wants into harmony (Hemingway, 2012 and Siemon & Wolff, 2024). Being human entails coming from a particular setting (home or place) where it is not just a combination of certain experiences or objects; It conveys a sense of safety, comfort, familiarity, and ease in human society (Todres et al, 2009 and Siemon & Wolff, 2024). Humanisation, according to the World Health Organisation and the WHO Commission on Social Determinants of Health (2008), is the process of experiencing a human's existence, including feelings, moods, and emotions. Every one of them serves as a lens through which people view the world. Variations in life expectancy are related to life satisfaction and compensation and are caused by variances in income (Waytz, A., & Epley, N., 2021 and Hemingway, 2012).

The excessive use of technology in today's environment puts strain on the delicate balance between altering human and machine roles. Donna Haraway (1991) claimed in her groundbreaking essay that technology and people had become increasingly entangled. These days, smartphones can do everything, and eventually, technology will be used for all tasks, including calculations (Anderson, 2018 and Rašan, I. 2021). Anderson (2018) further stated that it is obvious that people in the West have grown dependent on technology and entangled themselves with it. Additionally, Turkle (2017) demonstrated that many people put themselves at great risk by using technology.

2.1.2.1 Corporate Sustainable Responsibility (CSR)

Corporate Sustainable Responsibility (CSR) is a more expansive term emphasising charitable and philanthropic endeavours. In addition to the standard goal of maximizing profits, it must prioritise social and environmental advancement to support long-term sustainable corporate operations. (Das & Dutta, 2019; Amini and Bienstock, 2014). The goal of CSR is to motivate institutions and organisations to prioritize the public interest and provide substantial value for their communities, shareholders, consumers, and stakeholders in all business operations (Ariani et al. 2024 and Zhou & Xu, 2023). Increasing competitive advantages and strengthening links between suppliers, governments, customers, and communities could create value. (Accounting Research Institute and Islamic Banking and Finance Institute Malaysia, 2013). The idea of CSR first surfaced in the 1970s. It focuses more on altruism, morality, and social contributions while taking the law and economy into account (Geva, 2008). According to Newman et al. (2016), to improve social performance and accomplish long-term goals, CSR involvement is focused on practical, political, and strategic advancements while taking the organisational effects on stakeholders into account.

According to Cantele (2017), the foundation of an organisation's internal structure is the work done by its employees in any socially conscious firm. Employees, for instance, are managing corporate operations and sabotaging the networks and connections of all parties. Thus, employees are the key to paving an effective CSR implementation. This facilitates researchers to concentrate on employees (Newman et al., 2016; Shen and Benson, 2016). Sancho et al. (2018) further asserted the integration of CSR and HRM boosts the positive effects on organisational performance and promotes long-term success. Because of this, CSR and HRM have grown in importance in corporate policy for better results. Additionally, there has been a surge in the understanding of corporate sustainability and associated concepts by the companies, which has positively impacted their stakeholder relationships and brand reputation. (Ariani et al. 2024 and Madrakhimova, 2013).

According to Ratajczak, M. (2016), 43% of respondents—entrepreneurs—do not know the CSR regulations. In contrast, knowledgeable entrepreneurs possess a piece of information and details regarding CSR rules, and they apply them to their companies. The industries that implement CSR regulations the most frequently are manufacturing and retail (Ariani et al. 2024). Nonetheless, there is an immense

demand for information and CSR practices in other industries, particularly agribusiness, which may be explored further in order to focus on small- and medium-sized business owners as well as CSR practices in other industrial sectors generally. This could have a significant effect on all the stakeholders (governments, NGOs, SMEs, big and small businesses, and the nation's economy). Given their influence, consumers have to evaluate socially conscious businesses, particularly those in the agricultural sector, as these endeavours have the potential to both enhance and elevate domestic and global competitiveness (Tarjo et al., 2022).

2.1.2.2 Value-Based Intermediation (VBI)

In line with the Maqasid Al-Shariah viewpoint, Islamic financial institutions and the banking sector are crucial to developing good governance and meeting stakeholder needs. The Malaysian government is taking a good governance approach, looking at innovation as a means of producing values for all parties involved, rather than just as a means of giving stakeholders a competitive edge. Multiple documents were released by Bank Negara Malaysia (BNM) to help banks comprehend the country's new financial system. The concept of VBI has yielded favourable outcomes for the community, environment, and economy and in 2017, the Value-Based Intermediation Assessment Framework (VBIAF), the VBI Scorecard, and the VBI methodology were introduced by BNM.

The goal of the VBI strategy document is to serve as an implementation guide for enhancing the functions and significance of Islamic Banking Institutions (IBIs). According to the Central Bank of Malaysia (2017), VBI is a concept that aims to produce desired results through actions, behaviour, and products that have a beneficial effect on the community, environment, and economy. In order to have a significant socioeconomic impact, this strategy paper focuses on encouraging Islamic banking institutions (IBIs) to implement VBI (Roshayani et al., 2018). VBI places a strong emphasis on IBIs offering goods and services that comply with Shariah regulations and desired results.

According to the VBI strategy paper published by Bank Negara Malaysia (2017), VBI adoption reinforces and improves the positive impact and roles of financial institutions. In addition, the goals of VBI (Value Based-Intermediation) and Shariah (money, faith, life, posterity, and intellect) are consistent with improving well-being. As a result, Islamic banks are increasingly using this competitive edge to

shift the financial sector's trajectory toward more sustainability and value addition (Roshayani et al., 2018).

The strategy paper discusses the four pillars of VBI: best business conduct, community empowerment, self-governance, and entrepreneurial attitude. Additionally, VBI provides a fresh incentive for Islamic financial institutions (IFIs) to investigate new avenues and shift from Shariah Compliance to value propositions as a new paradigm. In order to accomplish the SDGs by 2030, IFIs place a strong emphasis on the idea of value-based or value creation that should converge and integrate with all business activities involving all stakeholders. According to Latifa (2017), human civilization promotes a value intermediary rather than a credit intermediary in order to improve the global economic system.

In order to implement the VBI approach, it is likely necessary to make some significant changes to current practices. For example, new and creative products and services should be proposed and produced for the current market, with a lasting effect on all relevant segments. Additionally, current innovative techniques should be adopted to strengthen and enhance the original products and services, making them more creative. Furthermore, the delivery of specialized knowledge and skills to other industries aside from IBIs is being prioritized increasingly (Abdul Kadir et al, 2024). Moreover, to increase awareness and support for the ecosystem, community, and individuals, the implementation of VBI must have a significant impact and value for all stakeholders and expand the IBIs networks with multiple segments, including network institutions, knowledge providers, and government agencies. (Abdul Kadir et al, 2024 and BNM Strategy Paper, 2017). IBIs therefore make an effort to boost their growth by giving business segments new and varied opportunities. In keeping with this, Bank Negara Malaysia has released VBI scorecards to gauge the implementation of the VBI initiative in IBIs. IBIs utilize and disclose this scorecard document to the public in order to assess and compare IBIs performance. (BNM Strategy Paper, 2017).

BNM has highlighted four fundamental VBI thrusts. First, an entrepreneurial attitude that centres on the area in which IBIs facilitate company activities by offering a range of support services, including market setting, financial support, proactive help, and advice. The second focus is on best conduct, which focuses on IBIs implementing procedures, services, and practices that benefit stakeholders. The third is good self-governance, which emphasizes stakeholder participation in governance policies. Finally, community empowerment includes granting financial settlements that have a

significant positive influence in order to enable communities to become fully and practically empowered. Directors and upper management of IBIs are determined to implement VBI in accordance with BNM's suggestions in their published strategy papers, while also continuing to offer a plethora of innovations and enhancements in their goods and services (Dhesi, 2022).

A potential obstacle to VBI adoption is influencing and altering the mindset of bank stakeholders, including employees, management, and the board of directors (GIFF, 2018). Since the Shariah perspective serves as the primary guide for what constitutes acceptable and non-permissible goods and services, VBI may shift IBIs away from profit maximization and toward value creation, as was covered in the previous arguments (Ismail et al., 2018 and Ismail et al., 2022). In addition, during the Global Islamic Finance Forum (GIFF, 2018) in Kuala Lumpur, Malaysia, Datuk Nor Shamsiah Mohd Yunus, who quoted Henry Ford in her speech,

"Business must be run at a profit; else it will die. But when anyone attempts to run a business solely for profit and thinks not at all the service to the community, then also the business must die, for it no longer has a reason for existence."

In Kasri's (2018) analysis of GIFF 2018, the attitudes and ideas of Islamic bankers were investigated and recognized. Remarkably, most of those bankers continued to think in terms of maximizing profits. As a result, it is challenging to alter the culture of banks, as they are always focused on maximizing profit rather than altruism. Regarding Islamic Banks' conduct and provision of financial services, their personnel must consider the positive effects on the environment and community. Additionally, they should be cognizant of public issues such as waste disposal, air pollution, global warming, and climate change, among others (Ismail et al., 2018). The United Nations has set 17 sustainable development goals (SDGs) to be achieved by 2030, and Islamic banks are crucial to carrying out this commitment. For this reason, BNM supports VBI as one of the initiatives to guide the Islamic banking sector to advance in supporting SDGs. Consequently, researchers have shown great interest in discussing the 17 SDGs, which are covered in the following section (Dhesi, 2022 and Ismail et al., 2022).

2.1.2.3 Sustainable Development Goals (SDGs)

The United Nations launched a new sustainable development agenda in 2015, with targets set until 2030. The universal set of goals for the next 15 years, from 2016 to

2030, was the basis for the creation of the sustainable development goals. In addition, sustainable development objectives focus on a range of advantages for global communities and societies. Additionally, there are 169 targets and 17 goals in the Sustainable Development Goals (United Nations, 2015b). In both affluent and developing nations, implantation, financing, and monitoring are likely to be complex and challenging (Kamphoff, Spitz, & Boonstoppel, 2015).

The adoption and realization of sustainable development goals involves all governmental and non-governmental entities, including national and local governments, businesses, associations, and industries (United Nations, 2015a). In 2016, U.N. Secretary-General Ban Ki emphasized the importance of innovation in achieving sustainable development goals. That being said, science and technology will be crucial to reaching the SDGs by 2030. However, the primary drivers of government participation in the SDGs are people, society, and community (Giannetti et al. 2020 and EtheRaj et al., 2018). People are thus inspired to take part and take action in favour of the sustainability of our economy going forward.

According to UCLG (2015), science, technology, and innovation are three pillars that benefit both the environment and people and have been connected to a number of sustainable development goals. These SDGs start with individuals and their new perspectives, and they could thus be accomplished through rules, laws, politics, technology, and inventions. People's newfound mindsets could be influenced by raising the standard of education, especially when it comes to learning about sustainable development in all societal circumstances. Education at all levels sets the route for learning and enables individuals to endure the difficulty of reaching SDGs in the present and future. Sustainable development welcomed new opportunities for businesses, new markets, and new regulations, particularly for SMEs, which have a big influence.

However, innovation for more effective corporate entities across social, environmental, and economic companies is still a challenge for the community, with the Sustainable Development Goals (SDGs) as the primary goal to be met (Whiteman, Hope, & Wadhams, 2013). In this context, given that every nation has a distinct policy, how could they all unite around a common objective and accomplish this goal? As Sustainable Development Goals (SDGs) are the main objective that must be accomplished, the community faces difficulty in finding innovative ways to create more effective corporate entities across social, environmental, and economic

businesses (Whiteman, Hope, & Wadhams, 2013 and Mahdi et al. 2022). This creates a concern over how countries can accomplish this goal with different policies. (ESCAP, United Nations, 2015).

Joshi et al. (2013) asserted that as knowledge is a major source of organisation, people are the primary factor influencing the growth of the organisation. Joshi continued by saying that the abilities, knowledge, and skills of the staff members may eventually help the company achieve its highest level of profit. Additionally, it is more probable to refer to intellectual capital as an intangible asset, such as individuals who are primarily involved in the process of creating value that leads to competitiveness (Lerro et al., 2014; Xu and Wang, 2018 and Mahdi et al. 2022).

2.1.2.4 The role of Humanisation in SMEs

As previously mentioned, SME operations are crucial for enhancing the environment, economy, and communities. However, SMEs may have a limited individual influence, they may also pose direct or indirect dangers (Lin & Koh, 2018 and Azam & Abdullah, 2024). One of these hazards is the lack of a professional work force introduced by SMEs and how these firms manage such risks by considering the role of major enterprises.

The importance of corporate sustainability (C.S.) has grown for investments and company advancements. According to Swarnapali (2017), businesses that practice sustainability may be able to improve performance and communication. The social and environmental sustainability difficulties, especially in emerging markets, may cause SMEs' statements to diverge even when they are trying to undertake sustainability initiatives to obtain long-term benefits (Goyal et al., 2015 and Razak et al., 2025). Many developing nations struggle with creating workable training support enforcing mechanisms, according to Fenwick et al. (2007). Widespread transgressions of fewer criteria result from this. In 2016, the Global Forum on Migration & Development: Business Mechanism concluded that small and medium-sized enterprises (SMEs) around the globe significantly influence all business communities and advance the current sustainable development goals. SMEs contribute to the development of innovations for the international business community (Razak et al., 2025 and Azam & Abdullah, 2024).

2.2 RESEARCH GAP

Based on the previous discussions, many authors have suggested adopting the new norm of digitalisation. Based on the paper "Accelerating Malaysian Digital SMEs: Escaping the Computerization Trap," they surveyed 2033 Malaysian SMEs. This study recommended that SMEs in Malaysia should utilize the capabilities of ICT to adopt digital transformation. The study added that SMEs need to have three priorities: having access to digital technology, having knowledge about technology usage, and the ability to initiate and contribute to the digital environment (Razak et al., 2025 and Azam & Abdullah, 2024). SMEs must re-engineer their businesses by concentrating on strategies, business models, infrastructures, and processes aligned with digital transformation (Rašan, I., 2021). Moreover, few SMEs may be unable to use digital technology due to the large capital needed to invest in and the low levels of proper plans in adopting digitalisation. Yet this study was conducted in 2018, and still, SMEs are not fully embracing digitalisation as their priority to grow their businesses.

Challenges in digitalising SMEs activities include the lack of resources, lack of knowledge, insufficient funds, size, and technology capability (Parker & Castleman, 2007; Dharmalingam & Kannabiran, 2011; Hashim, 2008; Levy & Powel, 2004; Cui et al., 2008; Jones et al., 2005; Beheshti & Salehi-Sangari, 2007; Duan et al., 2012, Rašan, I., 2021 and Siemon, D., & Wolff, A. 2024). Hussein et al. (2018) found that organisational, environmental, and technological factors significantly affect digitalized SMEs' activities.

In a survey conducted by John Marshall in 2016 involving 3,500 customers, digital leaders scored 50 per cent higher in adding more advantages to customers, making life more comfortable, saving time, and customising. However, when the survey approached the human touch by using softer attributes such as being on the customers'

side, listening to, caring for, and so forth, digital leaders do not significantly score positive and higher scores. Therefore, loyalty rankings are less than 30 per cent, which indicates a potential risk of fleeting utilization. The connection between customers or human beings and business has a higher value if it drives preference and loyalty (Razak et al., 2025 and Azam & Abdullah, 2024). Marshall (2016) also added that human connection delivers lasting value for customers as technology tries to suit it and is destined to remember better, listen more, and know more. People will soon be fully connected to the networks through their clothes, biometric data, and desires,

which will be recognised anywhere and anytime. Companies now need to understand human needs that technology is destined to deliver and build customer experience around them, such as: take care of me, help me, let me contribute, and understand me (Razak et al., 2025 and Azam & Abdullah, 2024).

On the other hand, despite technology playing an imperative role in improving SMEs' performance, there is still a lack of optimum customer satisfaction. For instance, firms need to increase profits and build strong and effective relationships with their stakeholders to achieve social and environmental sustainability. To add more, CSR, reputation, and sustainability become important factors that identify its performance and competitive position in the short and long run. Hence, CSR and VBI positively impact the financial institution and other companies, especially SMEs (Zhou & Xu, 2023; Abdul Kadir et al, 2024 and Ariani et al. 2024). CSR also affects SMEs' reputation, which is considered a key to an intangible asset that SMEs should focus on (Ariani et al. 2024). Besides, CSR also represents a win-win scenario by reinforcing community relationships, long-term corporation reputation, and a positive impact on the brand image (Zhou & Xu, 2023 and Ariani et al. 2024). This will increase profit maximization and social benefits, leading to helping SMEs gain new value and innovation for sustainable and long-term developments. This study's gap is that most works of literature are concerned with one-sided solutions, that digitalisation is the only tool to tackle SMEs for sustainable growth, and that they are looking at balancing humanisation and digitalisation to bring SMEs to sustainable success. The study tries to match digitalisation and Humanisation to manage SMEs' businesses in both stable and unstable climates by examining the adaptation of SMEs' resources (digitalisation and humanisation)

2.3 THEORETICAL FRAMEWORK

This section explains the theories covered in this study to achieve the objectives and answer the research questions mentioned in Chapter One. To help Malaysia SMEs reach sustainability, researchers need to identify related issues and challenges, come up with a systematic approach underpinned by relevant theoretical perspectives and apply them in the study. As outlined in the research objectives, this study aims to assess the awareness and perception of SMEs towards the relative importance of digitalisation and Humanisation(dynamic capabilities). Dynamic capabilities are

regarded as the mediating variable, and their importance in the uncertain environment will be examined. Thus, this section explains the proposed theoretical model to achieve the purposes of the study. It begins by explaining resource-based view theory (RBV) as well as environmental uncertainty and dynamic capabilities as variables affecting SMEs' sustainability and ends with a summary of this chapter.

2.3.1 The Resource-Based View (RBV)

The first theory underlining this study's framework is the Resource-Based View (RBV) theory. RBV is considered an "inside-out" theory for strategy development (Connor, 2002). It explains and analyses the resources of firms and understands how companies achieve sustainable competitive advantage. It focuses on transforming the companies' resources into superior performance and competitive advantage (Barney, 1986; Hamel and Prahalad, 1996). RBV has an internal focus on performance, which specifies companies' resources and capabilities (Barney, 1991; Wernerfelt, 1984). Also, RBV unveils that performance results and competitive advantage are from the firm-specific resources and capabilities that are difficult to use by other firms (Barney, 1986a, 1986b, 1991; Wernerfelt, 1984; Rumelt 1987).

Barney (1991) highlighted that resources and capabilities should be valuable and rare, increase efficiency and effectiveness, and be imperfectly imitable and non-substitutable (VRIN). VRIN criteria are one of the main criteria for a resource to fulfil competitive advantage and sustainable performance (Madhani, 2010). Thus, it is necessary to find out the organisations' appropriate resources in identifying study variables, particularly in SMEs. Morgan et al. (2006) highlighted six categories of resources as crucial resources for competitive advantage: financial resources, human resources, cultural resources, relational resources, reputation resources, and informational resources. Other researchers further classified significant resources of competitive advantage into two categories: intangible resources and tangible resources. Intangible resources are human resources, innovation resources, and reputation resources. The tangible resources are physical resources, financial resources, technological resources, and organisational resources (Itami and Roehl, 1987; Hall, 1993; Hall, 1992; Hitt et al., 2012).

The types of resources adopted were derived from Barney (1991) and Hall (1992), as stated by Madhani (2010). In the same study, Madhani emphasised that RBV focuses on the significance of achieving sustainable competitive advantages for

a firm's resources. In line with the discussion made by previous researchers, this study categorised the resources into tangible resources (financial resources like the ability to generate external and internal funds, physical resources like the location of plants, offices, machines, and their geographic locations, access to raw materials and distribution channels, organisational resources like trademarks, possession of patents, copyrights, and technological resources like command, formal planning, and control systems and integrated management information systems) and intangible resources (human resources like managerial talents and organisational culture, innovation resources like research and development (R & D) capabilities to innovate new products, processes, and services, capacities for organisational innovation and change and reputation resources like perceptions of product quality, durability, and reliability among customers, successful product branding and positioning with a satisfied, reputation as a good employer, and reputation as a socially responsible corporate citizen.

2.3.2 Environmental Uncertainty

Achieving competitive advantage and maintaining sustainability over time are often challenged by environmental uncertainties and market forces (Lengnick-Hall et al., 2011; Linnenluecke, 2017; Rohrbeck, 2012). This is also applicable to the SMEs in Malaysia. Accordingly, this study brings environmental uncertainties as a major component in the research framework. The established linkage between RBV and sustainability is to be influenced and moderated tremendously by the uncertain environment that SMEs face, especially with the recent Pandemic forces.

Environmental uncertainty is defined as the lack of information on dimensions of the environment determining the company's performance, such as insufficiency of predicting the impacts of environmental changes and the consequences of a response choice (Kessler, 2013). Uncertainty is a crucial concept, as highlighted in several studies on strategic management (Lawrence and Lorsch, 1967; Duncan, 1972; Milliken, 1987; Chintakananda & McIntyre, 2014; McIntyre & Srinivasan, 2017). McIntyre and Srinivasan (2017) found that the surveyed firms mentioned that uncertainty relies on the relationship between companies and the external environment as well as the strength of network effects in the market.

Vecchiato (2012) defined environmental uncertainty as a concept where managers have little understanding of the organisational environment, which leads to

the firms' instability. In this regard, uncertainties can happen in a firm's environment when the firm's decision-makers cannot efficiently predict the environment and its components, such as changes in technologies and attitudes (Milliken, 1987; Vecchiato, 2012). Also, Chawla et al. (2012) have stated that scholars and practitioners have been looking for applicable ways to manage environmental uncertainty many years ago, such as Knight (1921) and Cyert and March (1963). Thompson (1967) has described dealing with uncertainty as the essence of the administrative process. Lengnick-Hall et al. (2011) and Linnenluecke (2017) have suggested that enterprises should prepare for any future environmental changes or uncertainty by building the ability to respond effectively to specific situations and generate more resources that enhance organisational sustainability.

Lengnick-Hall et al. (2011), Linnenluecke (2017) and Rohrbeck (2012) have highlighted that managing uncertainties and maintaining sustainability are considered the main challenges faced by businesses, especially SMEs. The impact of uncertainties towards SMEs may cause a lack of information and insufficient response to environmental changes. Environmental uncertainty causes the owners/ managers of SMEs to be unable to understand the information about the organisational environment, which leads to the unsustainability of SMEs (Vecchiato, 2012). SMEs are not able to predict the environment due to the lack of market networks (McIntyre and Srinivasan, 2017). In addition, the inability of SMEs to manage uncertainty causes risk in various aspects (discontinued business operation, instabilities in handling unexpected situations, and unsustainability in the longer term), which leads to business failures (Linnenluecke, 2017). Thus, these uncertainties and risks faced by SMEs cause the need for systematic and proactive approaches to assist strategic decision-making for stable and sustainable businesses.

Accordingly, this study examines the extent to which environmental uncertainties have a significant impact on the established relationship between firm resources and the achievement of competitive advantage and sustainability. It is also a concern of this study to identify the need for SMEs to acquire dynamic capabilities of resources in managing environmental changes and forces. Specifically, the dynamic Capabilities will focus on two major aspects, i.e., digitalisation and Humanisation. Dynamic capabilities are discussed comprehensively in the following section.

2.3.3 Dynamic Capabilities

According to Madhani (2010), dynamic capabilities (DC) are the firm's process that utilises the resources, particularly approaches that can integrate, gain, reconfigure, and upgrade resources. Besides, DC stresses the resources that need updates from time to time and following market changes. The DC process is regarded as the extension of the firm's Resource-Based View (RBV) (Schilke et al., 2018), which requires that companies initiate schemes that can shift their services, routines, and products over time (Madhani, 2010). Due to the rapid market changes, the adaptation of DC is crucial to gain a competitive advantage in the global environment. For example, managers of companies are required to improve the company's capabilities to attain competitive advantages (Teece et al., 1997; Eisenhardt and Martin, 2000). Teece D. J. (2007) and Teece et al. (1997) stated that the global environment is rapidly changing, and companies need to be timely, flexible, and able to use the resources and capabilities in innovative ways. Helfat et al. (2007) defined DC as the company's capacity to create, extend, or modify its resources.

In addition, DC is valuable because it is able to boost the company to integrate, build, and reconfigure the resources internally and externally to adapt to the rapid market and environmental changes (Teece and Leih, 2016). Naldi et al. (2014) studied small and medium-sized enterprises' performance in the dynamic production industry and found that seizing capabilities improves the performance of the firms effectively.

Thus, DC allows the company to improve its resources by initiating planned modifications in reacting to environmental uncertainties (Schilke et al., 2018). Several authors, such as Teece et al. (1997), Teece (2014), Schilke et al. (2018), and Dixon et al. (2014), highlighted that DC is very important to keep a competitive advantage in unpredictable environmental situations. In contrast, ordinary capabilities concentrate on stable environmental conditions. In line with these views, this study regards DC as an important component that mediates and enhances the impact that RBV would have on SMEs achieving sustainability within an uncertain environment.

Based on the previous discussion on the theories and variables involved in this study, the study shows that Resource-Based View (RBV), environmental uncertainty and dynamic capabilities (DC) are interrelated concepts which support the framework. RBV provide comprehensive information about the significance of the resources (tangible and intangible resources) and their impact on the firm to achieve a

sustainable competitive advantage. However, these resources are influenced by environmental uncertainty which makes it difficult in decision making and better predictions. To bridge this gap, dynamic capabilities act as a mediator to enable the companies to adapt, reconfigure and upgrade their resources to be able to respond effectively to any environmental changes. Together, these three aspects identify the resources which achieve the long-term sustainability of Malaysian SMEs. This integration will assist Malaysian SMEs to survive in an unpredictable environmental business change.

2.4 DEVELOPMENT OF HYPOTHESES

2.4.1 Tangible Resources and Sustainability

Tangible resources are seen as those organisational visible physical structures and other related assets (Buckley & Graves, 2016). The availability of tangible resources is said to be a great opportunity for SMEs to ensure sustainable competitive advantage (Mesgari & Jabalameli, 2018). Several studies have confirmed the relationship between tangible resources and firms' sustainability in different contexts. For instance, a study conducted by Gaya (2017) posited that tangible resources that are valuable, rare, inimitable, and sustainable owned by a company are essential in the value creation process, which in turn ensures sustainability amongst SMEs and other related firms. Another study conducted in Zimbabwe by Musara & Razafiarivony (2024) with 350 respondents confirms the significant relationship between tangible resources and firm suitability in terms of competitive advantage and the overall success of a firm.

Similarly, Surajit (2023) carried out an investigation in South Africa on the influence of tangible resources on the sustainability of SMEs. The result insists that tangible resources such as human skills have a significant positive relationship with a firm's sustainability. In addition, the study emphasised that a sustainable net zero economy has a more substantial effect on the social performance of a firm. Moreover, Mustaruddin (2018), in a study conducted to examine the effect of tangible resources on firms' sustainable competitive advantage with 255 observations amongst 51 listed companies in the Indonesian stock exchange, maintained that tangible resources have a significant effect on a firm's sustainability value. Likewise, the resource-based view (RBV) theory insists that resources such as tangible resources of a firm are capable of

ensuring its sustainability towards competitive advantage and overall achievement of organisational objectives. Accordingly, this study hypothesises that;

H1: Tangible resources have a significant positive relationship with SMEs' sustainability.

2.4.2 Intangible Resources and Sustainability

Intangible resources comprise intangible assets and stocks of strategic information, which a firm can utilise as needed to pursue its set objectives. In other words, intangible resources can be described as organisational non-monetary assets that cannot easily be seen or touched (Helena & Anna, 2020). In recent times, modern firms have come to realise that market value related to their intangible resources is more frequently higher than the value related to the cash flows generated from their tangible resources (Helena & Anna, 2020). In addition, several studies have suggested that intangible resources have a significant relationship with a firm's sustainability. For example, a study was carried out by Helena & Anna (2020) to examine the influence of intangible resources on firms' sustainability using 175 respondents from the telecommunication sector in Poland. The result posits that intangible resources have a significant effect on sustainability potential.

In the same vein, Madu et al. (2023) examined the influence of intangible resources and firm sustainability among selected manufacturing firms in Nigeria using 503 respondents. The findings emphasised that intangible resources have a significant positive influence on a firm's sustainability. Likewise, Sam et al. (2022) maintained that intangible resources have a significant effect on firms' sustainability in a study that was conducted amongst 128 SMEs in Lebanon. Furthermore, the study insists that intangible resources are capable of enhancing SMEs' competitive advantage. Similarly, the RBV theory insists that for a firm to strengthen its market value, it has to emphasise its strategic resources, which can easily help in establishing a sustained competitive advantage (Dubey et al., 2019). Hence, the current study hypothesises that;

H2: Intangible resources have a significant positive relationship with SMEs' Sustainability

2.4.3 Dynamic Capabilities (Digitalisation and Humanisation) and Sustainability

Digitalisation is described as a strategic process through which an organisation modernises and transforms its operations and functions by migrating from an analogue approach into a digital environment (John, 2024). Several economies have been determined to achieve sustainable development across the globe. Based on this, the role of digitalisation and SMEs emerged as inevitable choices in striving for sustainable development (John, 2024). Studies have confirmed the nexus between dynamic capabilities (digitalisation) and firms' sustainability in different contexts. For example, a study conducted by Ilkunur et al. (2024) in China confirms the link between dynamic capabilities (digitalisation) and sustainability. The study emphasised that digitalisation helps in providing a win-win situation for China towards overall sustainable development. Equally, Ahmed et al. (2023) examine the relationship between digitalisation and the sustainability and competitive performance of SMEs. Data was collected from 376 manufacturing SMEs in Pakistan. The study posits that digitalisation has a significant positive influence on SMEs' sustainable competitive advantage.

In recent years, researchers have also shown concern about the important role of dynamic capability (Humanisation) towards firms' competitive advantage. Humanisation helps in making business more relatable and personable without conceding professionalism (Kyala, 2023). Hence, dynamic capabilities play a vital role in ensuring organisational success. Similarly, Manon & Gjalt (2019) conducted a study involving 297 SMEs in the Netherlands and found that dynamic capabilities have a significant influence on SMEs' sustainability and overall performance by balancing the environmental, social and economic objectives of the SMEs. Again, Magoti et al. (2023) maintained that dynamic capabilities have a significant influence on sustainability. The study emphasised that firms that acquire a set of dynamic capabilities are more likely to increase the social, economic as well as environmental sustainability performance of the firm. Nadeem et al. (2024) investigated the effect of dynamic capabilities on sustainability amongst manufacturing firms in Pakistan. The result of the investigation suggests that dynamic capabilities lead to sustained competitive advantage and ensure the achievement of firms' set objectives. Hence, the current study hypothesises that;

H3: Dynamic capabilities have a significant positive relationship with SMEs' sustainability

2.4.4 The Mediating Role of Dynamic Capabilities

In recent times, several studies have been carried out to examine the mediating role of dynamic capabilities in the relationship between different study variables in different contexts, and positive results have been achieved. For instance, Acosta-Prado & Tafur-Mendoza (2024) studied the mediating role of dynamic capabilities between ICT and sustainability consisting of executives, founders, and partners from 102 Colombian new-technology-based companies selected through purposive non-probability sampling. Thus, dynamic capabilities are composed of three dimensions (Absorption, innovation, and adaptation). The outcome of the investigation revealed that dynamic capabilities mediate the relationship between the study variables. Equally, Sultan & Tawfeeq (2023) conducted a study to examine the mediating role of dynamic capabilities (social customer relationship management) on sustainability consisting of 243 managers from Saudi Arabian SMEs. The finding maintained that dynamic capabilities mediate the relationship between the study variables.

Moreover, Mohanad & Hayder (2019) conducted a study among public universities in Iraq to examine the mediating influence of dynamic capabilities on the relationship between human resource development and organisational effectiveness with 215 respondents. The result also revealed that dynamic capabilities mediate the relationship between the study variables. Likewise, Emmanuel et al. (2021) conducted a study to investigate the mediating effect of dynamic capabilities on the link between strategic leadership amongst 290 SMEs' performance. The findings insist that dynamic capabilities mediate the relationship between the study constructs. Also, Hoang et al. (2020), in a study conducted, examined the mediating influence of dynamic capabilities in the relationship between intellectual capital and ICT with 350 respondents from Vietnamese firms.

The outcome emphasised that dynamic capabilities mediate the relationship between the study variables. Moreover, the resource-based theory has recognised the significant roles of social, human, and organisational capital towards sustainability and the overall success of a firm. Based on the above argument, dynamic capabilities are seen as capable of mediating the relationship between two different variables (dependent and independent). Again, dynamic capabilities can stand as a mechanism in describing the relationship between the current study variables. Hence, this study hypothesises that,

H4: Dynamic capabilities mediate the relationship between tangible resources and SMEs sustainability

H5: Dynamic capabilities mediate the relationship between intangible resources and SMEs' sustainability.

2.4.5 The Moderating Role of Environmental Uncertainties

Environmental uncertainty is described as the shortage of information on particular actions and events taking place in a firm, or it could be an impossibility to predict external changes and their influence on firms' decisions (Maria et al., 2011). Thus, environmental uncertainties have been used as moderating variables in many studies in different contexts and achieved positive results. For example, Yasmine & Jiafei (2022) attempt to examine the moderating role of environmental uncertainties on the link between environmental scanning and organisational learning with organisational resilience with 249 respondents amongst Egyptian SMEs. The result confirmed the moderating effect of environmental uncertainties between the study constructs. In the same vein, Ali & Rohaida (2023) examined the moderating role of environmental uncertainties on the link between budgetary participation and budget quality amongst 15 states in Iraq with 180 respondents. The findings show that environmental uncertainties moderate the relationship between the study variables.

Similarly, Oanh et al. (2023) studied the effect of perceived environmental uncertainty and task uncertainty on the influence between performance management systems and firms' performance in Vietnam. The findings insist that environmental uncertainty moderates the relationship between the study constructs. In addition, Hamdiah et al., (2024) conducted a study to find out whether environmental uncertainty can play a moderating role in the link between business strategy and tax avoidance with data obtained from 91 manufacturing firms in Indonesia. The outcome of the investigation further confirmed that environmental uncertainties moderate the link between the study variables. Accordingly, the resource-based theory emphasises the evaluation of environmental policies towards firms' sustainable competitive advantage. The RBV insists that the more management of a firm manages its environmental uncertainties, the more sustainable the firm's performance is expected to be in the quest to achieve success. Based on this, the current study hypothesises that;

H6: Environmental uncertainties moderate the relationship between tangible resources and SMEs sustainability

H7: Environmental uncertainties moderate the relationship between intangible resources and SMEs' sustainability.

2.5 CONCEPTUAL FRAMEWORK

To achieve the specified objectives, this study has determined the dependent and independent variables that can enhance the sustainability of Malaysian SMEs. The following conceptual framework has been developed based on the previous discussions on the relevant underpinning theories and approaches (Figure 1.0).

Two types of resources, i.e. tangible and intangible resources of SMEs are the independent variables for this study, and these are by the categories highlighted by the RBV. RBV includes intangible resources (human resources, innovation resources, and reputation resources) and tangible resources (financial resources, physical resources, organisational resources, and technological resources). Studies have done extensive research on the direct impact of those resources on firms' capabilities in achieving competitive advantage and sustainability (Barney, 1986; Barney, 1991; Hitt et al., 2012).

Figure 2.1 has identified all the study variables and how these variables are related to each other. The study has categorized the SMEs' resources into tangible and intangible resources and how the role of these resources achieves sustainability and competitive advantage (Barney, 1986; 1991; Hitt et al., 2012). The figure also shows the need for adaptability of dynamic capabilities (Digitalisation and Humanisation) which emphasize the flexibility of the resources in uncertain environments (Lengnick-Hall et al., 2011; Teece & Leih, 2016). In addition, figures 2.1 and 2.2 show the sustainability of SMEs as a dependent representing the resource ability to maintain long-term sustainability. The study also argues that prior research only focused on the direct impact of resources on sustainability. Therefore, the study examines the moderating factor which shows that uncertainties influence how resources and dynamic capabilities interact with SMEs sustainability. The environmental uncertainties variable is important because it emphasizes the need to adapt dynamic capabilities and understand the uncertainties to assist SMEs in responding effectively to strengthen their sustainability.

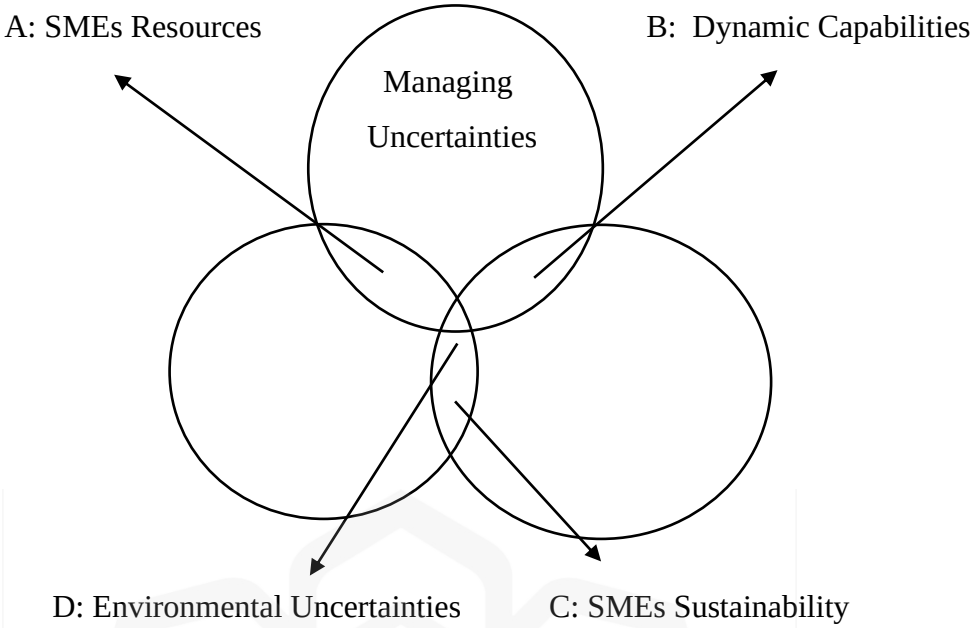


Figure 2.1 The Relationships Between All the Proposed Variables

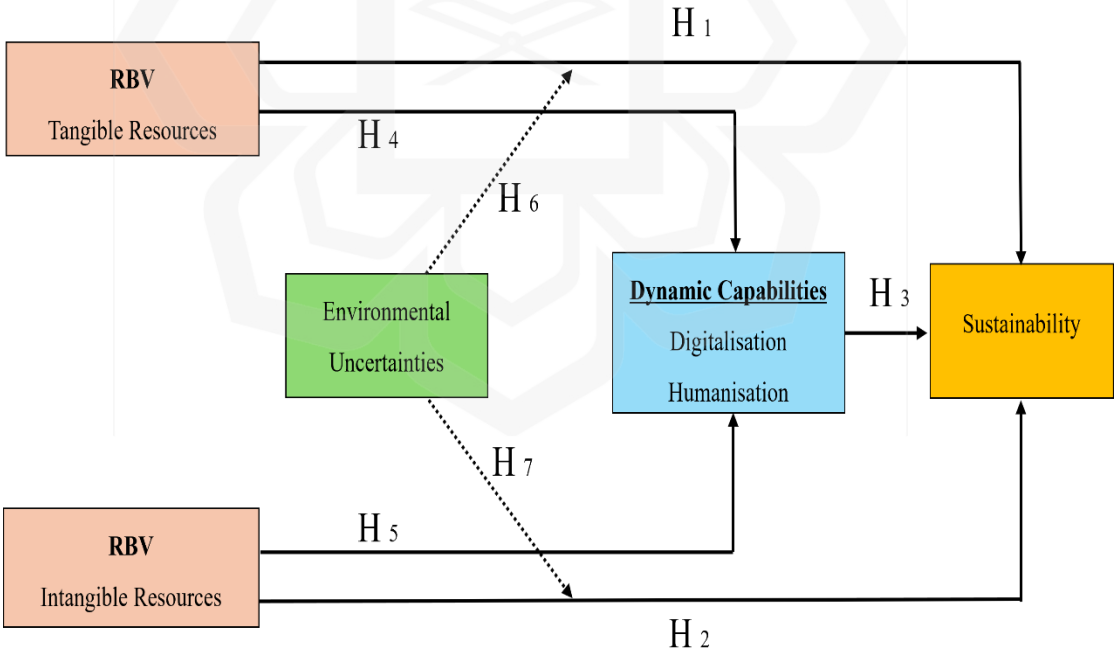


Figure 2.2 Conceptual Framework of the Study

As shown in Figure 2.1 how this study focuses on the interaction relationship of SMEs resources, dynamic capabilities, and SMEs sustainability, this study further

investigates the need for the resources to be more adaptive and flexible due to environmental uncertainties (Lengnick-Hall et al., 2011; Milliken, 1987; and Linnenluecke, 2017). This requirement is well-captured by the dynamic capabilities of resources, as discussed by (Madhani, 2010; Teece and Leih, 2016 and Milliken, 1987). As such, this study regards the dynamic capabilities (digitalisation and Humanisation) as mediating the established relationship between resources and SMEs sustainability, while environmental uncertainties as the moderating variable. These relationships are comprehensively visualised in Figure 2.2.

2.6 CHAPTER SUMMARY

This chapter presented the literature review on issues pertaining to uncertainties among Malaysian SMEs and focused on Industrial Revolution 4.0, Humanisation, and how SMEs are related and impacted by these two dimensions. The chapter also discussed the underpinning theories for this study and presented the conceptual framework that depicts the objectives of this study. It highlighted four aspects: resource-based view theory (RVB), environmental uncertainty, dynamic capabilities, and the proposed model, followed by the summary of the chapter. Finally, the chapter identified the continuum that leads to the sustainable success of SMEs.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 INTRODUCTION

This chapter discusses several important aspects of the research methodology. These aspects include the research paradigms, research design, data collection and sampling procedures, determination of the instrument for measuring the variables, pre-test, pilot study, and data analysis. In general, this study used the quantitative method, which was supported by the qualitative approach. A questionnaire was used for the quantitative data collection, while in-depth interviews were used for the qualitative data collection. In the quantitative approach, after conducting the pilot study, a few analyses were conducted, including exploratory factor analysis (EFA) and inventory reliability. In this study, data analysis develops two models: the measurement model or Confirmatory Factor Analysis (CFA) and Structural Equation Modelling (SEM). The researcher must fulfil three requirements: uni-dimensionality, validity, and reliability to verify the measurement model. In this regard, accurate and suitable selection methods are necessary to determine the validity of the results obtained and to ensure high reliability to achieve the prescribed objectives of the study. IBM SPSS Software was used to analyse the descriptive statistics, including frequency, mean, standard deviation, and inferential statistics. At the same time, AMOS Software was used for developing the study model while the qualitative data were analysed manually using the thematic method.

3.2 RESEARCH PARADIGMS

Research is a study conducted to answer “uncertainty” (Abd Halim, 2012). It involves several approaches to conducting the proper study through philosophical paradigms and research design. Understanding the research paradigm is important because it leads to the development of a suitable research design (Given, 2008). Three major research paradigms are discussed by previous researchers, such as Creswell (2014) and Given (2008). Among them are:

1) Positivist – This is also called the scientific method because it adopts a measurable objective, and estimation can be tested. It also uses hypotheses as initial expectations in order to operate the variables involved in the study and to make expectations from the theories. This paradigm is frequently applied in quantitative research.

2) Interpretivist or constructivist – This transforms the focus from describing phenomena to understanding the situation. This paradigm intends to explain, understand, or describe nature. This approach is commonly used in qualitative research.

3) Pragmatism – This approach is important for concentrating on the research problem and using diverse approaches to solve the problem. This type of paradigm arises from actions, situations, and consequences. Usually, this paradigm is used in mixed-methods research.

The research paradigm is also related to the approach of the research. Since this study is quantitative research, the paradigm of this study is positivist.

3.3 PHILOSOPHICAL ASSUMPTION

Philosophical assumptions have strengths and limitations, which the researcher has contributed as a doctoral researcher. Philosophical assumptions are crucial for efficient research and have a high positive impact on research. Creswell & Tashakkori (2017) suggested that the researcher explicitly clarifies philosophical assumptions because it helps the researcher explain why the study uses quantitative, qualitative, or mixed- methods.

Morgan (2007) defined philosophical assumptions as shared beliefs among researchers who share the same views on meaningful questions and finding sufficient solutions for these questions. Generally, research design choice depends on two aspects (the research aims and objectives and the research's philosophical understanding, personal beliefs, experience, and assumption) (Denzin and Lincoln, 2011). Therefore, it is not just as simple as it is; the decision research method made by the researcher is not randomly chosen from available methods such as questionnaires, interviews, and observations. It is always by the philosophical assumptions that researchers expect, and it unveils the nature of society and science in which new knowledge would be produced (Burrell and Morgan, 1979). Particularly, the selection

of research methodology may be based on the researcher's philosophical assumptions about ontology, human nature as well as epistemology (Gill and Johnson, 2002). Respectively, after identifying ontological and epistemological assumptions and taking objective and subjective versus favourable phenomenological position of the research decision regarding methodology needs to be taken (Bashir et al. 2017). Sale, Lohfeld and Brazil (2002) stated that the philosophical assumption of quantitative research is positivism, which is recognised as truth by empirical research. Thus, the ontological position of the quantitative approach is that only one truth exists. Besides, the epistemological position of this approach is that both the researcher and the phenomenon are independent. In this regard, researchers using the approach normally collect data using questionnaires with a larger sample size (Carey, 1993).

On the other hand, Guba and Lincoln (2005) stated that qualitative research assumption is based on constructivism and interpretivism. In this light, the ontological position is that a series of truths exist and reality is constructed individually or socially (Berger & Luckmann, 1991). Meanwhile, the epistemological position is that reality never existed before being investigated, and it does not exist if it is considered as reality (Smith & Heshusius, 1986). This approach involves an interview with a smaller sample size (Reid, 1996).

Philosophically, the use of mixed methods in social science research allows the use of pluralistic approaches to solve a problem (Onwuegbuzie et al., 2009). Thus, instead of focusing on research methods, mixed-method research concentrates on the research problem to determine appropriate strategies and investigate the problem simultaneously (Morgan, 2007). In this light, mixed methods enable the researchers to obtain comprehensive information from both approaches and provide appropriate solutions to investigated problems. Clarke & Yaros (1988) believe that mixed methods would strongly balance both of these approaches' strengths and weaknesses.

For this study, quantitative analysis was employed in line with the research objectives specified in Chapter One. As mentioned by Carey (1993), empirical evidence and confirmation using a larger sample size are needed in this study. Hence, quantitative analysis was adopted for this purpose. Upon gathering the confirmation, the reality needs to be constructed (Guba and Lincoln, 2005), which is related to support the quantitative findings and obtain recommendations for developing systematic and proactive tools for risk assessment for the use of Malaysian SMEs. As

such, this study employed a quantitative approach to derive comprehensive conclusions relevant to the objectives of the study (Onwuegbuzie et al., 2009).

3.4 RESEARCH DESIGN

In academic studies, the research approaches are fundamental and they mainly influence the research direction and outcome. In addition, two primary approaches can be applied for research, inductive and deductive, both approaches have distinct applications, characteristics and implications. The inductive approach is a method that begins with specific data or observations toward generalizations and theories. It is normally used for qualitative research especially in exploratory research where the objective is to generate conceptual frameworks or theories (Saunders et al., 2019). In this approach, the data will be collected without using a theoretical framework. This approach is suitable for studying complex, poorly understood phenomena (Bryman & Bell, 2019). However, this approach has limitations in terms of generalizing the findings and may be not applicable to broader populations (Silverman, 2020).

On the other hand, the deductive approach begins with existing theories and hypotheses and tests them through empirical a top-down method that begins with established theories or hypotheses and tests them through empirical observation. It is normally used in quantitative research and confirmatory studies. This is also used to validate or refute any existing theories (Saunders et al., 2019). In this approach, the researchers refer to the theoretical framework and hypotheses and then collect data to test the hypotheses. This approach also is considered a structured and systematic method and it is suitable for studies that focus on establishing relationships or generalize findings (Bryman & Bell, 2019). The strength of this approach is the ability to generalize the findings which is significant for knowledge development. However, in terms of emerging or exploring new phenomena, this approach has less effect (Silverman, 2020).

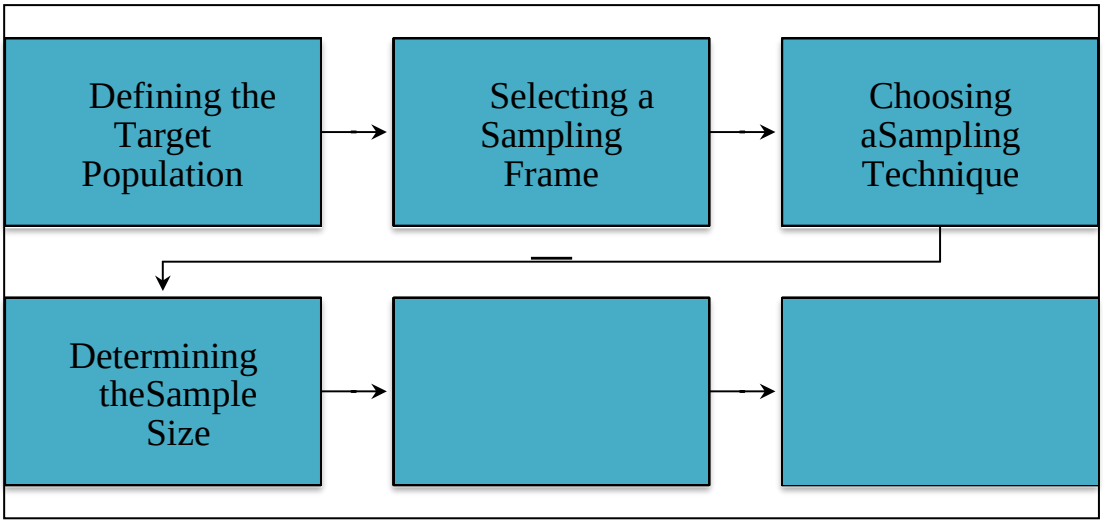
Therefore, this study adopts a deductive approach since the study is aligned with its objectives, methodological requirement and theoretical framework. Theoretically, the study relies on established theories such as Resource-Based View (RBV). These theories guided the researcher to formulate the hypotheses and it is appropriate because it allows the researcher to test the relationships among all the constructs which have an impact on the sustainability of Malaysian SMEs (Teece et al.,

2020). It also assists the researcher in producing findings that can be generalized to Malaysian SMEs. In addition, this study aims to address specific gaps in the existing literature, such as the role of dynamic capabilities in mediating the relationship between RBV resources and SME sustainability. The deductive approach is suitable for this study because it focuses on examining the relationships within a structured framework (Teece et al., 2020).

This study implemented the quantitative research design. The quantitative approach is based on the numerical data collected and analysis using statistical tests. The measurement data in quantitative research rank first the reliability and validity to examine the theory, and examine the relationship between variables (Chua, 2006b). This means that quantitative methods develop a more systematic procedure to test, prove and verify the hypothesis. There are several quantitative research methods, including experimental design, experimental, and quasi-structured questionnaires (Marican, 2005). When a large number of samples are involved, the quantitative method is the best method to answer the research objectives expressed. The quantitative paradigm has its strength in that its methods are quantifiable, and the data can usually be generalised to some larger population (Rusli & Hasbee, 2011). Thus, the determination of the research method is important because it may assist the researcher in understanding how to adapt the research objective to the situation.

3.5 SAMPLING METHOD

Selecting the sample is a stage that assists researchers in obtaining the research data. So, answering research questions will determine the right selection of samples from the right population (Taherdoost, 2016). There are six stages to choosing a sampling technique in this study, as shown in Figure 3.1 below.



Source: (Taherdoost, 2016)

Figure. 1 Stages of The Sampling Process

The first step for sample selection is that researchers should clearly define the target population which is relevant to the number of people residing in a specific county. The second step of sample selection is that researchers will list the real cases to withdraw the sample and it should represent the population. The third step of the sample selection process is that researchers have a technique of selecting the sample that makes an impact on the population in general in line with the conceptual framework. There are two types of sampling techniques that researchers can use: probability and non-probability sampling.

Probability sampling is a technique that means every item in the population can be chosen in the sample. It has five categories, which include simple random sampling, stratified random sampling, systematic sampling, cluster sampling, and multi-stage sampling. In simple random sampling, every case in the population has the same probability of being included in the sample. Systematic sampling involves selecting every nth case, which may be selected from a random starting point. It is popular among researchers because of its simplicity. In stratified random sampling, the population will be divided into subgroups, and a random sample will be taken from each subgroup. This sampling is used when there is more variation within the population. Cluster Sampling divides the population into groups or clusters, and random samples will be taken from these groups and clusters. Finally, multi-stage

sampling involves narrowing samples from the broad selected samples (Taherdoost, 2016).

On the other hand, the nonprobability sampling method is used for case study research design as well as qualitative research. The participants of the sample are not compelled to be representative, but the researchers should identify clear justification. Nonprobability sampling includes snowball sampling, quota sampling, convenience and purposive or judgemental sampling (Taherdoost, 2016).

3.5.1 Sampling for Quantitative Data Collection

Survey research using questionnaires was used to achieve the objectives of the study. Many researchers suggested this approach due to the high positive results which could be obtained and found (Soltanizadeh et al., 2016; Mubarak et al., 2019; Avirutha, A. 2018; Khalique et al., 2018; Haseeb et al., 2019; Ripain et al., 2017; Ombi, N. et al., 2018). The target sample for this study comprised owners/managers of SMEs in various industries in Malaysia. Purposive random sampling, also known as judgmental sampling, was employed in this study. The main objective of purposive sampling is to produce a sample that can represent the population logically in a nonrandom and cross-section manner (Maxwell, 1996). There are several types of purposive sampling technique strategies, such as homogeneity, snowball, typical case, criterion, etc (Palinkas et al., 2013). As this study implemented the purposive sampling techniques, two purposive sampling approaches, snowball and criterion sampling approaches, were used to reach the respondents.

The criterion approach was used to identify SMEs that meet the predetermined criteria for this study. The predetermined criteria for this study are linked to the official definition of SMEs in Malaysia by SMECorp. Based on SMECorp, for the manufacturing sector, SMEs are identified firms with sales turnover not above RM50 million or number of full-time employees not above 200. Whereas, for the services and other sectors, SMEs are classified as firms with sales turnover not above RM20 million or number of full-time employees not above 75. These definitions are considered as the predetermined criteria for the selection sample using the criterion method.

Snowball strategy was also utilised in this study to identify the sample (owner/manager of SMEs). Using this approach, several SME owners were identified and surveyed accordingly. Further, more samples would be identified from those who

have been surveyed, provided that they know these owners and have similar characteristics (in the SME categories).

3.5.2 Sampling for Qualitative Analysis

The qualitative method was utilised to support the quantitative findings. This approach involves conducting interviews with experts in the field related to Malaysian SMEs, including any government and non-government organisations or agencies such as Financial Institutions (both conventional and Islamic), SMECorp, Matrade, Perbadanan Nasional Berhad (PNB), Institut Keusahawanan Negara Berhad (INSKEN), Professional Training & Education for Growing Entrepreneurs (Protege), etc. Purposive sampling is used in this study, as mentioned in the sampling method part. Purposive sampling could be employed for both qualitative and quantitative data collection approaches (Palinkas et al., 2013). As the purposive sampling method explained in the previous section for the quantitative analysis, criterion and snowball strategies will also be employed to reach the relevant samples for the interview part of data collection.

3.6 RESEARCH POPULATION AND SAMPLE SIZE

There are various ways to identify the right sample size for both quantitative and qualitative studies, with both embracing their challenges and difficulties for researchers. This is more pronounced in research that combines both quantitative and qualitative approaches in either concurrent or sequential sampling design.

3.6.1 Sample Size for the Study

As for the quantitative part of this study, population refers to the owners/managers of businesses that fit the definition of an SME in Malaysia regardless of the industries and state where they operate.

This study approached SME owners/managers from different states in Malaysia. Regarding the sample size identification, several studies have been referred to in order to determine what the right or suggested sample size would be the most appropriate. The size could be affected by the variation in the population, and the accuracy needed available time, as well as costs involved (Remenyi 1998). As this study employed the Structural Equation Modeling (SEM) for the quantitative part, a

large sample size was required, as highlighted by Hair et al. (2014) and Kline (2011). Briefly, several sizes suggested by researchers were 30 to 500 (Roscoe, 1975), 250 to 500 (Schumacker & Lomax, 2010), 10 participants per variable (Ho, 2006), etc.

Nevertheless, most studies referred to the criteria in Hair et al. (2014), which are a minimum of 100 for a model containing 5 or fewer parameters, a minimum of 150 for a model with 7 constructs or less, 300 for a model with 7 or more constructs and 500 for a model with larger constructs. Since this study has around 7 constructs based on the developed conceptual framework, a sample size with a minimum of 300 was targeted to allow the achievement of determined research objectives.

In addition, the purposive sampling technique was used to select the respondents to assist the researcher in supporting the quantitative objectives. Accordingly, Malterud et al. (2016) suggested that from 6 to 10 interviewees with various experiences may offer sufficient information. Another aspect to be considered, as suggested by researchers, is reaching the saturated stage. Saturation is defined as obtaining a comprehensive understanding of the subject matter of interest by continuing to sample until there is no new meaningful information is obtained (Fusch & Ness, 2015).

Referring to the previous discussion, to support the quantitative objectives and provide recommendations on developing a proactive and systematic risk assessment and better planning for Malaysian SMEs, specific groups of interviewees were identified and approached. These include personnel from selected financial institutions, academicians, SMECorp, PNB, BNM, IT experts, etc. Hence, while this study targeted 5 personnel from various mentioned groups, the saturation guidelines were considered to ensure the comprehensiveness of the data.

Besides, the study uses the primary data to be collected by using a survey and supported by interviews. Potential While the study acknowledges the use of primary data collected via questionnaires, potential biases such as early-response bias and non-response bias should be under consideration. Early-response bias could happen when the participants complete the questionnaire after distribution immediately which differs systematically from late responders, potentially skewing results toward more motivated or opinionated individuals (Lindner et al., 2020). Non-response bias occurs when individuals who decline to participate in the survey systematically have different views from respondents, threatening the representativeness of the sample (Porter & Whitcomb, 2005).

To avoid these types of risks, this study utilized a few approaches such as:

a. Follow-up approach to encourage the respondents to participate in the survey.
b. Giving the assurances that the data will be confidential and private to avoid any social desirability bias.
c. Conducting statistical comparisons to check the early and late respondents to evaluate the response bias.

These approaches are according to Saunders et al. (2019) to improve data validity in survey-based research. While residual bias cannot be eliminated, the measures above strengthen confidence in the generalizability of findings.

3.7 RESEARCH INSTRUMENT (QUESTIONNAIRE DESIGN)

As explained in the methodological section, the researcher adopted a quantitative approach supported by a quantitative approach. The quantitative part used the survey method, and a questionnaire was used to collect data to fulfil the research objective. Sekaran (2003) declared that using a scale of choices is considered the most suitable approach to a survey due to easy and quick answers for respondents. Therefore, each item employs a five-point Likert scale (1-Strongly Disagree; 2- Disagree; 3-Somewhat; 4-Agree; and 5-Strongly Agree).

The questionnaire contains 13 pages and is divided into three parts – Cover Letter, Part A and Part B and was written in two languages (Bahasa Melayu and English). The cover letter is the first two pages of the survey that briefly explains the topic and the research objectives to respondents, the confidentiality statement, the respondents' instructions, and the researcher's details using two languages (English and Bahsah Malayu). Part A probes into the respondents' demographic information such as (i) Gender, (ii) Age, (iii) Education, and (iv) type of business. It consists of two sections: the background of the owner/manager (9 questions) and the background of the business/enterprise (13 questions). Part B consists of 5 sections: tangible and intangible resources, dynamic capabilities (digitalisation and Humanisation), environmental uncertainties, proactive and systemic risk assessment, and business sustainability.

3.8 ETHICAL CONSIDERATIONS

Ethical consideration is one of the main parts of the research procedure. It is to ensure the integrity of the research procedure as well as secure the well-being of the participants. According to Brinkmann & Kvale (2015), the researcher must ensure the confidentiality of all the participants as it is considered private and confidential. In addition, the researcher is also responsible for addressing any ethical issues that may occur throughout the study process. The researcher must inform the participants about the research details, and the risks as well as having the right to withdraw at any time. Furthermore, researchers also must report the analysis and findings of the data accurately and should ensure the results' reliability (Resnik, 2021).

Moreover, the researcher should clarify all the potential conflicts and risks that could occur during the research and how to avoid these conflicts and ensure reporting transparency, especially in funding sources. These considerations assist the researcher in maintaining trust in scientific research, confirming that the research's advantages would not harm the participants involved (Wiles et al., 2022; Lo, 2023).

3.9 MEASUREMENT OF CONSTRUCTS

Measurement scale implies an order of accuracy in which a variable can easily be evaluated (DeVellis, 2003). There are four different types of measurement scales namely, ratio, ordinal, nominal and interval scale (Awang, 2012). When a set of data describes a variable according to its type, and the measure differs in quality rather than quantity, it is known as a nominal scale (Awang, 2012; Kothari & Garg, 2014). The nominal scale is suitable for defining the respondents' profiles, such as marital status, age, gender, and socio-economic status (Awang, 2012). The ordinal scale describes variables of interest along with some forms of the continuum, and it clarifies the variables in terms of their rankings and different outcomes (Awang, 2012).

The interval scale clarifies the given variables in the form of an equal interval among them by giving room for the respondents to make a proper response to the research questionnaire in a specified interval (Awang, 2012). In the same vein, Kothari & Garg (2014) defined an interval scale as a measure used in analysing statistical actions such as the Pearson correlation coefficient, average standard deviation and other statistical tests and techniques that require interval scale data. Hence, the maximum behavioural measurement scales are mainly used in evaluating respondents '

behaviours at scales of 1 to 5, 7 or 10 (interval scales). This is commonly used in business and management research (Awang, 2012; Kothari & Garg, 2014). Accordingly, these authors maintained that ratio scale describes variables which have equal intervals among them but also have an absolute zero.

In management science, different scaling methods have been used, such as the staple scale, semantic different scale, Likert scale and the comparative scale (Flynn et al., 1990). It has been pointed out that the Likert scale is the most commonly used in social sciences and business management research (Gimenez et al., 2005). The Likert scale has a great advantage in terms of reliability and interpretation in any survey research (Boone & Boone, 2012; Cooper & Schindler, 2011; Laerhoven et al., 2007). Hence, the current study used the 1-5 Likert scale for measuring the items in the study constructs. Again, the content and criterion validity of this study were considered by expert views from the same field of study. This study also conducted face validity, which tends to offer information about whether an instrument offers sufficient coverage of the given topic. The main constructs in this study are tangible resources, intangible resources, dynamic capabilities (digitalisation), dynamic capabilities (Humanisation), environmental uncertainties, and sustainability. The following section describes the research instruments and measurements of each construct.

3.9.1 Tangible Resources

In this study, tangible resources are operationalised as those resources in a firm which can easily be seen, quantified, and touched. These resources include physical resources, financial resources, technological resources, and organisational resources (Gaya, 2017). Consequently, tangible resources are measured using nine (9) distinct items adapted from Barney (1991), Barney (1997), and Schoemake et al. (2018) to suit the current study. Accordingly, items measuring tangible resources are explained in Table 3.1.

Table 0.1 Items on Tangible Resources

1	Our firm has a high ability to generate internal funds from business operations. *Perniagaan kami mempunyai keupayaan yang tinggi untuk menghasilkan dana dalaman melalui aktiviti/operasi perniagaan.*
2	Our firm has a high ability to generate external funds by investing in capital markets such as investment in shares, bonds, fixed deposits, etc. *Perniagaan kami mempunyai kemampuan tinggi dalam menjana dana luaran dengan melabur di pasaran modal seperti pelaburan saham, bon, simpanan tetap dll* .
3	Our firm has high accessibility to external funds in the form of loans and grants from various governmental and non-governmental agencies. *Perniagaan kami mempunyai keupayaan yang tinggi untuk menghasilkan dana luaran melalui pelaburan di agensi kerajaan dan bukan kerajaan (saham, bon, deposit tetap, lain-lain.*
4	Our firm has proper records on financial reserves (equity capital and liabilities). *Perniagaan kami mempunyai rekod yang baik bagi rizab kewangan (modal ekuiti dan liability.*
5	Our business premise is located strategically with easy and fast access to customers. *Lokasi premis perniagaan kami strategik dengan akses yang mudah dan pantas kepada pelanggan.*
6	Our firm has easy access towards supplies and distribution channels (raw materials, equipment and fixed assets, technical facilities) *Perniagaan kami mempunyai akses mudah kepada bekalan dan saluran pengedaran (bahan mentah, peralatan dan aset tetap, kemudahan teknikal.*
7	Our firm has a clear organisational chart for better coordination (formal position, planning, reporting, control systems, etc)). *Perniagaan kami mempunyai carta organisasi yang jelas bagi pengurusan yang lebih baik (jawatan formal, perancangan, laporan, sistem kawalan dll.*
8	Our firm is currently using adequate technology in the business operation (input, process, output). *Perniagaan kami menggunakan teknologi yang bersesuaian dalam operasi bisnes (input, proses, output.*
9	Our firm is adapting modern technological advances in business operations (software applications, security systems, digital marketing, and distribution, etc.) *Perniagaan kami menggunakan kemajuan teknologi moden dalam operasi bisnes (aplikasi perisian (software), sistem keselamatan, pemasaran digital, pengedaran, dll.*

3.9.2 Intangible Resources

In this study, intangible resources are operationalised as non-measurable assets which cannot be touched and are needed by a firm to achieve its set objectives resources, which include.; innovation resources, human resources, and reputation resources (Helena & Anna, 2020). Thus, intangible resources were measured using ten (10) items. Items measuring intangible resources are clearly described in Table 3.2

Table 0.2 Items on Intangible Resources

1	Our firm consists of human resources equipped with relevant knowledge, skills and talents. *Syarikat kami mempunyai sumber manusia yang dilengkapi dengan pengetahuan, kemahiran dan bakat yang relevan.*
2	The human resources in our firm employ good soft and social skills (communication) *Sumber manusia di syarikat kami menggunakan kemahiran insaniah dan sosial (komunikasi) yang baik.*
3	The human resources in our firm employ hard and technical skills (professional and job-related). *Sumber manusia di syarikat kami menggunakan kemahiran teknikal (profesional dan berkaitan dengan pekerjaan.*
4	The human resources in our firm employ adequate knowledge of access to databases, access to informal information and tacit knowledge. *Sumber manusia di syarikat kami mempunyai pengetahuan yang mencukupi mengenai akses ke pangkalan data, akses ke maklumat tidak rasmi dan pengetahuan yang tersirat* .
5	The human resource in our firm is united by a common organisational culture (shared values, beliefs, attitudes, and behaviours). *Sumber manusia di syarikat kami disatukan oleh budaya organisasi yang sama (nilai, kepercayaan, sikap, dan tingkah laku Bersama.*
6	Our firm has clear and effective human resource management (HRM) policies for employees (recruitment, compensation, reward, welfare and benefits, training, etc.) *Syarikat kami mempunyai polisi pengurusan sumber manusia (HRM) yang jelas dan berkesan untuk pekerja (pengambilan, pampasan, ganjaran, kebajikan dan faedah, latihan, dll.*
7	Our firm has efficient relationships with both local and international entities and authorities. *Syarikat kami mempunyai hubungan yang baik dengan entiti dan pihak berkuasa tempatan dan antarabangsa.*

8	Our firm has adequate capabilities for research and development, new product development, innovation, and change. *Syarikat kami mempunyai kemampuan yang mencukupi untuk penyelidikan dan pembangunan, pembangunan produk baru, inovasi, dan perubahan.*
9	Our product/service has outstanding branding and positioning in the minds of the customers. *Produk/perkhidmatan kami mempunyai penjenamaan dan kedudukan yang luar biasa di fikiran pelanggan.*
10	Our product/service has established high quality, durability, and reliability among customers. *Produk/perkhidmatan kami mempunyai kualiti, ketahanan, dan kebolehpercayaan yang tinggi dalam kalangan pelanggan.*

3.9.3 Dynamic Capabilities (Digitalisation)

This study operationalised dynamic capabilities (digitalisation) as something converted from a traditional process or system to a technological system (El-Masri, 2018). Hence, digitalisation was measured using eleven (11) distinct items adapted from Barney (1991), Barney (1997), and Schoemake et al. (2018) to suit this research work. Hence, items measuring digitalisation are clearly described in Table 3.3.

0.3 Items on Digitalisation

1	Our firm quickly adapts to digital platforms in accessing customers (e.g., online sales.) *Syarikat kami cepat menyesuaikan diri dengan platform digital dalam mengakses pelanggan (cth., Jualan dalam talian.*
2	Digital marketing is crucial and highly useful in today's uncertain business environment. *Pemasaran digital sangat penting dan sangat berguna dalam persekitaran perniagaan yang tidak menentu pada masa kini.*
3	Our business structure has adapted to e-commerce activities. *Struktur perniagaan kami telah menggunakan aktiviti e-dagang.*
4	E-commerce platforms are highly crucial in responding towards environmental uncertainties and challenges. *Platform e-dagang sangat penting dalam menghadapi ketidakpastian dan cabaran persekitaran.*

5	Our firm utilises an e-payment system for business transactions. *Syarikat kami menggunakan sistem e-pembayaran dalam transaksi perniagaan.*
6	E-payment system is very convenient, reliable, easy, and competitive. *Sistem e-pembayaran sangat selesa, boleh dipercayai, mudah, dan berdaya saing.*
7	Our firm is responding fast in adapting digital technology in production and business operations. *Syarikat kami bertindak pantas dalam mengadaptasi teknologi digital dalam penghasilan dan operasi perniagaan.*
8	Our firm uses the ePOS system to record sales, manage payments and monitor inventory. *Syarikat kami menggunakan sistem ePOS dalam merekod jualan, menguruskan bayaran dan memantau inventori.*
9	ePOS system is an efficient way of reducing operational cost and increasing efficiency of businesses. *Sistem ePOS merupakan kaedah yang berkesan untuk mengurangkan kos operasi dan meningkatkan kecekapan perniagaan.* *Sumber manusia kami cepat memperoleh kemahiran dan pengetahuan mengenai digitalisasi.*
10	Our human resources are quickly acquiring skills and knowledge on Digitalisation. *Sumber manusia kami cepat memperoleh kemahiran dan pengetahuan mengenai digitalisasi.*
11	Digital technology is crucial in gaining a competitive advantage and maintaining the sustainability of our firm. *Teknologi digital sangat penting untuk memperoleh kelebihan daya saing dan mengekalkan kelestarian syarikat.*

3.9.4 Dynamic Capabilities (Humanisation)

The current study operationalises dynamic capabilities (humanisation) as moving towards value creation and concentrates more on developing the support system, advisory system and knowledge providers by enhancing the awareness and support to individuals, communities, and the ecosystem (A strategy paper issued by Bank Negara Malaysia, 2017). Accordingly, humanisation was measured using ten (10) distinct items adapted from Barney (1991), Barney (1997), and Schoemake et al. (2018) to suit the current study. Items measuring humanisation are clearly described in Table 3.4.

Table 0.4 Items on Humanisation

1	Our firm engages in social responsibility initiatives such as Corporate Social Responsibility (CSR), Value-Based Intermediation (VBI) and Sustainable Development Goals (SDGs). *Syarikat kami terlibat dalam inisiatif tanggungjawab sosial seperti Tanggungjawab Sosial Korporat (CSR), Pengantaraan Berasaskan Nilai (VBI) dan Matlamat Pembangunan Lestari (SDG)*
2	Social responsibility initiatives such as CSR, VBI and SDGs are crucial for the stability and sustainability of businesses, especially in uncertain environments. *Inisiatif tanggungjawab sosial seperti CSR, VBI dan SDG sangat penting untuk kestabilan dan kelestarian perniagaan, terutama dalam persekitaran yang tidak menentu.*
3	Social responsibility initiatives such as CSR, VBI and SDGs are crucial for the stability and sustainability of businesses, especially in uncertain environments. *Inisiatif tanggungjawab sosial seperti CSR, VBI dan SDG sangat penting untuk kestabilan dan kelestarian perniagaan, terutama dalam persekitaran yang tidak menentu.*
4	Humanisation initiatives in the form of advisory, coaching and support systems are crucial in business operations. *Inisiatif humanisasi dalam bentuk sistem nasihat, bimbingan dan sokongan sangat penting dalam operasi perniagaan.*
5	Initiatives towards Humanisation require strong awareness and mindset changes of the staff/worker as a whole. *Inisiatif ke arah humanisasi memerlukan kesedaran dan perubahan minda yang kuat dari staf / pekerja secara keseluruhan.*
6	Our firm provides ample, fast, and continuous support for staff/worker development and growth. *Syarikat kami memberikan sokongan yang cukup, cepat, dan berterusan untuk pembangunan dan pertumbuhan kakitangan / pekerja.*
7	Social responsibility initiatives require continuous and dynamic organisational learning. *Inisiatif tanggungjawab sosial memerlukan pembelajaran organisasi secara berterusan dan dinamik.*
8	The strong organisational learning capability of a company ensures effective adjustment to the dynamics of external environments. *Keupayaan pembelajaran organisasi yang kuat/tinggi akan memastikan penyesuaian yang berkesan/efektif terhadap dinamika persekitaran luaran bagi sesebuah syarikat.*
9	Humanisationinitiatives require adequate skills and knowledge of human resources.

	Inisiatif humanisasi memerlukan kemahiran dan pengetahuan yang mencukupi dalam kalangan sumber manusia.
10	Strong leadership is crucial in teaching social responsibility initiatives and culture in businesses. *Kepimpinan yang kuat sangat penting dalam menerapkan inisiatif dan budaya tanggungjawab sosial dalam perniagaan.*

3.9.5 Environmental Uncertainties

This study operationalised environmental uncertainties as the inability of managers or business owners to recognise the environmental information (Vecchiato, 2012). Thus, Humanisation was measured using seven (7) distinct items adapted from Barney (1991), Barney (1997), and Schoemake et al. (2018) to suit the current study. Hence, items measuring environmental uncertainties are described in Table 3.5.

Table 0.5 Items on Environmental Uncertainties

1	Environmental uncertainties cause an impact on the existing resources, both tangible and intangible. *Ketidakpastian persekitaran memberikan kesan terhadap sumber sedia ada sesebuah perniagaan, termasuk sumber ketara dan sumber tidak ketara.*
2	Environmental uncertainties require necessary changes and upgrades on the existing resources, such as enhancing business operations, workers' skills and knowledge, marketing initiatives, supply chain systems, etc. *Ketidakpastian persekitaran memerlukan perubahan dan penambahbaikan terhadap sumber sedia ada seperti menambah baik operasi perniagaan, kemahiran dan pengetahuan pekerja, inisiatif pemasaran, sistem rantaian bekalan, dll.*
3	Environmental uncertainties cause difficulty in knowing what kind of response should be taken on the resources (digitalisation and Humanisation). *Ketidakpastian persekitaran menyebabkan kesukaran untuk mengetahui jenis tindak balas yang harus diambil terhadap sumber (digitalisasi – kemanusiaan.*
4	Environmental uncertainties challenge a particular business's sustainability. *Ketidakpastian persekitaran memberikan cabaran terhadap kelestarian sesebuah perniagaan.*
5	The pandemic Covid19 has had a tremendous impact on my business operations, especially in sustaining the costs, sales, supply chains, human resources,

	profitability and others. *Wabak Covid19 memberikan kesan yang luar biasa pada operasi perniagaan saya, terutamanya di dalam menampung kos, penjualan, rantaian bekalan, sumber manusia, keuntungan dan lain-lain.*
6	The pandemic Covid19 causes the adoption of digitalisation in my business operations. *Wabak Covid19 menyebabkan penggunaan digitalisasi dalam operasi perniagaan saya.*
7	The Covid-19 Pandemic led to the adoption of stronger and enhanced support systems, for example, business coaching, advisory support, motivational support, and others. *Pandemic Covid19 menyebabkan penggunan sistem sokongan yang lebih kuat dan dipertingkatkan seperti bimbingan perniagaan, sokongan khidmat nasihat, sokongan motivasi dan lain-lain.*

3.9.6 Business Sustainability

In this study, sustainability is operationalised as the social, environmental, and financial concerns to ensure responsible and ongoing success; social, environmental, and financial concerns are the main three sustainability components (Das & Dutta, 2019; Amini and Bienstock, 2014). Hence, sustainability was assessed using six (6) distinct items adapted from Barney (1991), Barney (1997), and Schoemake et al. (2018) to suit the current study. Hence, items measuring sustainability are listed in Table 3.6.

Table 0.6 Items on Sustainability

1	The sustainability of a business depends on the speed of responses towards environmental changes. *Kelestarian perniagaan bergantung kepada kepantasan tindak balas terhadap perubahan persekitaran.*
2	Digitalisation initiatives ensure the long-term sustainability of businesses. *Inisiatif digitalisasi memastikan kelangsungan perniagaan dalam jangka masa yang Panjang.*
3	Having a good advisory and support system will assist businesses in being more sustainable in the long term. *Mempunyai sistem nasihat dan sokongan yang baik akan membantu perniagaan menjadi lebih mapan dalam jangka masa yang panjang.*

4	Our firm has strong capabilities in ensuring sustainability throughout business operations. *Syarikat kami mempunyai keupayaan yang tinggi dalam memastikan keberlangsungan sepanjang operasi perniagaan.*
5	Our firm resources are always prepared to face potential environmental uncertainties. *Sumber syarikat kami sentiasa bersedia untuk menghadapi ketidakpastian persekitaran.*
6	Our firm resources are made flexible in facing potential environmental uncertainties. *Sumber syarikat kami adalah fleksibel dalam menghadapi ketidakpastian persekitaran.*

Table 0.7 Summary of Measures and Measurement Scale

Variable	Nature	Item	Scale	Type
Tangible Resources	Adapted	9	Interval	5point
Intangible Resources	Adapted	10	Interval	5point
Digitalisation	Adapted	11	Interval	5point
Humanisation	Adapted	10	Interval	5point
Environmental Uncertainties	Adapted	7	Interval	5point
Sustainability	Adapted	6	Interval	5point
Total		**53**		

Since this study was carried out in Malaysia, where the official language is “Bahasa Malayu” and the respondents speak and write in Bahasa Melaayu, the survey was designed in English and translated into Bahasa Melayu. To ensure the correctness of the use of words and sentences, the researcher sent the questionnaire to English and Bahasa Malayu experts for proper review before conducting the pilot test to confirm the suitability of the words and sentences used in the questionnaire.

A pre-test is a popular method to verify the appropriateness of questionnaire items by experts in a particular field to ensure that the items are aligned with the research questions and suitable for the research (Zikmund et al., 2013). This test is very important as it allows the assessment of the suitability and understanding of the

items to be used (Curtarelli & Van Houten, 2013). In this study, the questionnaire items were adapted, modified and customised by the researcher to suit the research population and help achieve research objectives. Hence, a pre-test was carried out after the initial completion of the questionnaire in order to test the quality and identify any item that stood out to be confusing or even difficult to answer and to also mention the appropriateness of utilising the five-point interval Likert scale. The pre-testing was also conducted to ensure that the questionnaire wording was appropriate with the levels of the respondents to eliminate ambiguity in case of any in the questionnaire. In an attempt to make sure that the respondents understood the meaning of every item in the questionnaire and minimise response bias, the study checked the content validity of the respondents by pre-testing the instruments and, at the same time, gathering their comments to know how well they understand the items in the questionnaire.

3.10 PILOT STUDY

Before pilot testing, the researcher modified the items constructed by the experts' input before distributing the questionnaires to the respondents. The pilot study involved owners of SMEs in Malaysia, and the respondents were selected by applying a simple random sampling technique. As mentioned in Awang (2012), a pilot study must have a minimum of (30) respondents to determine the internal validity of the questionnaire. Hence, one hundred and thirty (100) questionnaires were distributed to the respondents. However, sixteen (16) questionnaires were rejected due to incomplete answers, while 30 completed and usable questionnaires were retained for analysis.

The main purpose of a pilot study is to test the survey instruments using a small sample of respondents before the full-scale study (Awang, 2012). Hence, carrying out a pilot study enables the researcher to make necessary assessments of the reliability, appropriateness and suitability of the data collection instruments as well as to improve the survey procedures (Yong & Pearce, 2013). A pilot study also enables the researcher to make some anticipations and adjustments to potential problems before conducting the full-scale research.

As mentioned earlier, the pilot test was administered to selected SME owners. The researcher ensured that all ambiguities were clarified during the pilot study and that all suggestions made by the respondents to further enhance the quality of the survey instruments were carefully taken into consideration. While the respondents

agreed that they understood the survey items, they also suggested that the survey items could be simplified by making use of shorter sentences and easier language due to the respondents' diverse levels of education. In this regard, further adjustments to the survey items were considered before undertaking the full-scale research. Afterwards, the data were studied using the Statistical Package for Social Science (SPSS) software. At this phase, two analyses were performed: Exploratory Factor Analysis (EFA) and reliability analysis.

3.10.1 Data Reduction Procedure (EFA Analysis)

The use of the Exploratory Factor Analysis (EFA) procedure for every construct by the researcher has been strongly emphasised to ascertain whether the dimensionality of items has changed from prior research (Awang, 2012, 2015). This is important when an existing study is quite different from prior studies with respect to the kind of organisation, socioeconomic status, culture, and lapses in duration (time) between two different studies. In other words, the dimensions attained by prior studies might not hold particularly when the present research work is performed in a new environment. The Exploratory Factor Analysis (EFA) is regarded as a technique used by modern researchers to organise, identify, and reduce the number of given items in an exact questionnaire into a précised construct, essentially, after obtaining data from the pilot test (Yong & Pearce, 2013). The recommended and acceptable sample size for conducting a pilot study ranges from (30) for carrying out the EFA. In this study, 30 samples were utilised which is suitable for the conduct of analysis in this research work.

EFA was executed on the entire variables involved in this research work, namely, tangible resources, intangible resources, digitalisation, Humanisation, environmental uncertainties, and sustainability using the 5-point Likert scale. Hence, the Principal Components Analysis (PCA), Kaiser-Meyer-Olkin (KMO), is used in determining Bartlett's Test and the sampling adequacy in order to find out the significance of the constructs. The KMO test shows the presence of any multicollinearity in the given items (Chua, 2009). Again, the KMO range differs from 0 to 1. Thus, the most appropriate items to be used for the factor analysis are when the value of the KMO test exceeds 0.6 (Awang, 2012).

Likewise, the KMO is acceptable when its value exceeds 0.5, as suggested by Chua (2009). In this light, the Barlett test is normally utilised in order to recognise the

correlation between the given items as well as compare two or more samples' variance to identify whether they belong to the same population (Hair et al., 2010). In addition, the acceptance level of Bartlett's test usually depends on its significance value (Hoque & Awang, 2016). Hence, in a situation where its significance value is close to 0.00 ($p<0.05$), it has become confirmed that the items are suitable for the factor analysis (Awang, 2014; Hair et al., 2010; Hoque & Awang, 2016). As Exploratory Factor Analysis (EFA) indicates that items can be retained based on the factor loading, items must attain the recommended value of 0.6 to be acceptable and retained for further analysis (Awang, 2012, 2015; Chua, 2009; Hair et al., 2010). In this research work, factor loading greater than 0.6 was set as the threshold value for acceptability.

3.10.1.1 The EFA Procedure for Tangible Resources Construct

This construct was measured using nine (9) items in the research questionnaire. The Exploratory Factor Analysis (EFA) results in Table 3.9 clearly indicate the descriptive statistics for each of the given items measuring the tangible resources construct. Thus, the construct was actually measured with the use of an internal scale (Likert) (Awang et al., 2016; Rahlin et al., 2019; Bahkia et al., 2019), ranging from one (1) (strongly disagreed) to five (5) (strongly agree) as well as the given items statement and its statement code. The mean and the standard deviation of the score for each item are presented in Table 3.8.

Table 0.8 The Mean and Standard Deviation for Items Measuring Tangible Resources Construct

1. Serial Number	2. Items Code	3. Mean	4. Std. Deviation
5. 1	6. TR1	7. 8.41	8. 1.338
9. 2	10. TR2	11. 8.19	12. 1.432
13. 3	14. TR3	15. 8.49	16. 1.255
17. 4	18. TR4	19. 8.13	20. 1.460
21. 5	22. TR5	23. 7.70	24. 1.505
25. 6	26. TR6	27. 8.28	28. 1.357
29. 7	30. TR7	31. 7.96	32. 1.590
33. 8	34. TR8	35. 8.26	36. 1.504

37. 9	38. TR9	a. 7.78	i. 1.356

The Exploratory Factor Analysis (EFA) with the application of the extraction method of Principal Component Analysis (PCA) and varimax (variation maximization) rotation was conducted on these nine (9) items measuring the tangible resources construct. Thus, Bartletts' Test of Sphericity is significant as shown in Table 3.9 with the required P-value of less than 0.05 (significant). Additionally, the measurement of the sampling adequacy by Kaiser-Meyer-Olkin (KMO = 0.912) is excellent since the threshold value is greater than 0.6, as required (Awang, 2010; Rahlin et al., 2019). Thus, the two results (Bartlett's Test P-value is less than 0.05 and the KMO value is above 0.6). This signifies that the data is adequate/suitable for the data reduction process in EFA (Awang, 2010; Rahlin et al., 2019; Bahkia et al., 2019).

Table 0.9 The KMO and Bartlett's Test Score for Tangible Resources Construct

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.912
Bartlett's Test of Sphericity	Approx. Chi-Square	753.979
	Df	28
	Sig.	.000

3.10.1.2 The Total Variance Explained for Tangible Resources Construct

The results in Table 3.10 indicate that only one component emerged from the EFA procedure based on the computed eigenvalue, which is greater than 1.0. The eigenvalue is 5.723 for the emerged component. The total variance explained for the construct is 72.656%. These nine (9) items that have been grouped in a single component measure approximately 72.656% of the tangible resources constructed. The total variance explained is acceptable since it exceeded the minimum requirement of 60% (Awang, 2010; Bahkia et al., 2019; Rahlin et al., 2019). In other words, the items intended to measure a particular construct should be able to measure a minimum of 60% of a given construct.

Table 0.10 The Total Variance Explained for Tangible Resources Construct

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.723	72.656	**72.656**	5.723	72.656	**72.656**
Extraction Method: Principal Component Analysis.						

Table 3.10 explains the single (1) component that emerged and the respective item code resulting from the EFA procedure. The factor loading for each item should be above 0.6 in order to be retained (Awang, 2010; Bahkia et al., 2019; Rahlin et al., 2019) in a situation whereby an item that fails to achieve the required 0.6 for factor loading should be deleted (Awang, 2010; Bahkia et al., 2019; Rahlin et al., 2019). Furthermore, Table 3.11 shows the item's code as well as their respective factor loading. No item was removed since all the factor loading exceeded 0.6, as required.

Table 0.11 Items under the component and their respective factor loading for Tangible Resources Construct

Component Matrix	
Items Code	Component
	1
TR1	.784
TR2	.891
TR3	.836
TR4	.880
TR5	.839
TR6	.870
TR7	.819
TR8	.848
TR9	.762

3.10.1.3 The Internal Reliability for the Instrument Measuring Tangible Resources Construct

The study, at this stage, computed the value of Cronbach's Alpha, which replicates the internal reliability for those retained items for the purpose of measuring their latent construct. Thus, internal consistency or reliability indicates how strongly the given items hold together their respective components when measuring their given constructs. Hence, the value of Cronbach's Alpha should be above 0.7 for the items to be able to achieve internal reliability (Awang, 2010, 2012). Table 3.12 presents the Cronbach Alpha for the Tangible Resources construct.

Table 0.12 The Internal Reliability for Tangible Resources Construct

Component	N of Items	Cronbach's Alpha
Tangible Resources	9	.942

The Cronbach value in Table 3.12 shows that the items have good/suitable internal reliability for measuring the affective commitment construct (Cronbach > 0.7). In addition, the Cronbach's Alpha for all eight (9) items is 0.94

3.10.1.4 The EFA Procedure for Intangible Resources Construct

This construct was measured with ten (10) items in the research questionnaire. The Exploratory Factor Analysis (EFA) results in Table 3.13 indicate the descriptive statistics for each of the given items measuring the intangible resources construct. Thus, the construct was actually measured with the use of an internal scale (Likert) (Awang et al., 2016; Bahkia et al., 2019; Rahlin et al., 2019), ranging from one (1) (strongly disagreed) to five (5) (strongly agree) as well as the given items statement and its statement code. Hence, the mean, as well as the standard deviation of the score for each item, is revealed in Table 3.13.

Table 0.13 The Mean and Standard Deviation for Items Measuring Intangible Resources Construct

Serial Number	Items Code	Mean	Std. Deviation
1	IR1	9.20	.737
2	IR2	9.30	.725
3	IR3	9.37	.640
4	IR4	9.47	.665
5	IR5	8.94	.916
6	IR6	8.79	.991
7	IR7	8.63	.928
8	IR8	8.57	.877
9	IR9	8.79	.974
10	IR10	9.00	.855

The Exploratory Factor Analysis (EFA) was carried out using the extraction method of Principal Component Analysis (PCA). Moreover, the varimax (variation maximization) rotation was conducted on ten (10) items measuring the construct of intangible resources. The results in Table 3.14 show that Bartletts' Test of Sphericity is significant with a P-value less than 0.05. Moreover, the Kaiser-Meyer-Olkin measurement of sampling adequacy is excellent (KMO = 0.715) since it has exceeded 0.6, the required threshold value (Awang, 2010; Rahlin et al., 2019). Hence, the two results (the P-value less than 0.05 of Bartlett's Test and the KMO value above 0.6) specify that the data is suitable and adequate to proceed to further data reduction process in the EFA (Awang, 2010; Bahkia et al., 2019; Rahlin et al., 2019).

Table 0.14 The KMO and Bartlett's Test Score for Intangible Resources Construct

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.715
Bartlett's Test of Sphericity	Approx. Chi-Square	611.565
	df	65
	Sig.	.000

3.10.1.5 The Total Variance Explained for Intangible Resources Construct

The results in Table 3.15 revealed that one (1) component emerged from the EFA process based on the computed Eigenvalue greater than 1.0. The eigenvalues are 2.235 for the component. In other words, these ten (10) items measure about 73.194% of the intangible resources construct. The total variance explained is satisfactory (acceptable) since it has exceeded the minimum requirement of 60% (Awang, 2010; Bahkia et al., 2019; Rahlin et al., 2019). In other words, the items intended to measure certain constructs should be measuring a minimum of 60% of the construct.

Table 0.15 The Total Variance Explained for Intangible Resources Construct

	Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	**2.235**	18.621	52.120	2.288	19.070	**73.194**
Extraction Method: Principal Component Analysis.						

Table 3.16 shows that only one (1) component emerged, and their respective item codes were obtained from the EFA technique. In order to retain each item in the construct, the factor loading for every item must be above 0.6 (Awang, 2010; Bahkia et al., 2019; Rahlin et al., 2019). In case of any item that fails to achieve the required minimum factor loading of 0.6, such item should be removed (Awang, 2010; Bahkia et al., 2019; Rahlin et al., 2019). Hence, Table 3.16 presents the items' codes as well as their respective factor loading. Thus, no item was removed since all factor loading exceeded 0.6 as required.

Table 0.16 Items Under Each Component and their Respective Factor Loading for Intangible Resources Construct

Component Matrix	
	Component
Items Code	1
IR1	.772
IR2	.785
IR3	.898
IR4	.856
IR5	.804
IR6	.738
IR7	.823
IR8	.784
IR9	.760
IR10	.823

3.10.1.6 The Internal Reliability for the Instrument Measuring Intangible Resources Construct

In the final stage, the value of Cronbach's Alpha was determined. The value replicates the internal reliability of the retained items to measure their latent construct. The internal consistency or reliability indicates how strong the given items hold together in their respective components in measuring their particular construct. The value of Cronbach's Alpha should be above 0.7 to achieve internal reliability (Awang, 2010, 2012). Table 3.17 presents the Cronbach Alpha for each component of the intangible resources' constructs.

Table 0.17 Internal Reliability for Intangible Resources Construct

Component	N of Items	Cronbach's Alpha
Intangible Resources	10	0.809

The Cronbach value in Table 3.17 shows that the items have good/suitable internal reliability for measuring the intangible resources construct (Cronbach > 0.7).

3.10.1.7 The EFA Procedure for Dynamic Capabilities (Digitalisation and Humanisation) Construct

This construct was measured using twenty-one (21) items in the research questionnaire. The Exploratory Factor Analysis (EFA) results in Table 3.18 indicate the descriptive statistics for each of the given items measuring the dynamic capabilities construct. Thus, the construct was actually measured with the use of an internal scale (Likert) (Awang et al., 2016; Bahkia et al., 2019; Rahlin et al., 2019), ranging from one (1) (strongly disagreed) to five (5) (strongly agree) as well as the given items statement and its statement code. The mean and the standard deviation for each item are presented in Table 3.18.

Table 0.18 The Mean and Standard Deviation for Items Measuring Dynamic Capabilities (Digitalisation and Humanisation) Construct

Serial Number	Items Code	Mean	Std. Deviation
1	DCD1	8.38	1.378
2	DCD2	8.92	1.671
3	DCD3	7.51	1.057
4	DCD4	7.33	1.151
5	DCD5	8.42	1.762
6	DCD6	7.22	1.842
7	DCD7	8.46	1.706
8	DCD8	7.91	1.769
9	DCD9	8.15	1.337
10	DCD10	8.09	1.355
11	DCD11	8.09	1.393
12	DCH1	8.25	1.491
13	DCH2	7.99	1.380
14	DCH3	8.04	1.288
15	DCH4	8.25	1.229
16	DCH5	8.28	1.323
17	DCH6	8.71	1.338
18	DCH7	7.78	1.304

19	DCH8	7.61	1.604
20	DCH9	8.47	1.749
21	DCH10	7.93	1.684

The Exploratory Factor Analysis (EFA) was carried out with the use of the extraction method of Principal Component Analysis (PCA), and the varimax (variation maximization) rotation was conducted on the twenty-one (21) items measuring the construct of Dynamic capabilities (Digitalisation and Humanisation). The results revealed in Table 3.19 show that Bartletts' Test of Sphericity is significant with a significant value P-Value less than 0.05. Moreover, the Kaiser-Meyer-Olkin measurement of sampling adequacy is excellent (KMO = 0.862) since it has exceeded 0.6, the required threshold value (Awang, 2010; Rahlin et al., 2019). Hence, the two results (the P-value less than 0.05 of Bartlett's Test and the KMO value above 0.6) clearly indicate that the data is suitable and adequate for the further data reduction process in the EFA (Awang, 2010; Bahkia et al., 2019; Rahlin et al., 2019).

Table 0.19 The KMO and Bartlett's Test Score for the Dynamic Capabilities (Digitalisation and Humanisation) Construct

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.862
Bartlett's Test of Sphericity	Approx. Chi-Square	3282.146
	df	464
	Sig.	.000

3.10.1.8 The Total Variance Explained for Dynamic Capabilities (Digitalisation and Humanisation) Construct

The result in Table 3.20 revealed that two (2) components or dimensions emerged from the EFA procedure, which is based on the computed Eigenvalue above 1.0. Hence, the eigenvalues are 12.644 for component 1 and 4.676 for component 2. The total variance explained for the construct is 78.064%. In other words, the twenty-one

(21) items grouped into two (2) components measured about 78.064% of the dynamic capabilities construct. The total variance explained is acceptable since it has exceeded the minimum requirement of 60% (Awang, 2010; Bahkia et al., 2019; Rahlin et al., 2019). In other words, the items intended to measure certain constructs should be able to measure a minimum of 60% of the given construct.

Table 0.20 The Total Variance Explained for Dynamic Capabilities (Digitalisation and Humanisation) Construct

	Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	**12.644**	41.040	41.040	5.841	18.842	18.842
2	**4.676**	14.753	55.793	5.667	18.282	**78.064**
Extraction Method: Principal Component Analysis.						

Table 3.21 presents the two (2) components that emerged, as well as their respective items that resulted from the EFA process. Thus, the factor loading for each item should be greater than 0.6 to be retained (Awang, 2010; Bahkia et al., 2019; Rahlin et al., 2019). Consequently, the item that fails to attain the required factor loading of 0.6 needs to be deleted (Awang, 2010; Bahkia et al., 2019; Rahlin et al., 2019). Table 3.21 shows the items as well as their respective factor loading. Thus, no item has been deleted since all factor loading has exceeded 0.6 as required.

Table 0.21 Items Under Each Component and their Respective Factor Loading for Dynamic Capabilities (Digitalisation and Humanisation) Construct

Rotated Component Matrix		
Items Code	Component	
	1	2
DCD1	.608	
DCD2	.803	
DCD3	.808	
DCD4	.833	

DCD5	.788	
DCD6	.679	
DCD7	.730	
DCD8	.738	
DCD9	.846	
DCD10	.789	
DCD11	.788	
DCH1		.706
DCH2		.774
DCH3		.745
DCH4		.681
DCH5		.688
DCH6		.637
DCH7		.765
DCH8		.818
DCH9		.809
DCH10		.624

3.10.1.9 The Internal Reliability for the Instrument Measuring Dynamic Capabilities (Digitalisation and Humanisation) Construct

In the final stage, the study computes the actual value of Cronbach's Alpha, which replicates the internal reliability of the retained items to measure their latent construct. Thus, the internal consistency or the internal reliability indicates how strongly the given items hold together their respective components in measuring their given constructs. Likewise, the value of Cronbach's Alpha should be above 0.7 to achieve Internal Reliability (Awang, 2010, 2012). Table 3.22 presents the Cronbach Alpha for every component of the Dynamic Capabilities (Digitalisation and Humanisation) construct.

Table 0.22 The Internal Reliability for Dynamic Capabilities (Digitalisation and Humanisation) construct

Component	N of Items	Cronbach's Alpha
Digitalisation	11	0.922
Humanisation	10	0.962
Total	**21**	**0.965**

The Cronbach value in Table 3.22 shows that the items have good internal reliability for measuring every component of the Dynamic Capabilities (Digitalisation and Humanisation) construct (Cronbach > 0.7). Likewise, the Cronbach's Alpha for the twenty-one (21) items is 0.965.

3.10.1.10 The EFA Procedure for Environmental Uncertainties Construct

This construct was measured using seven (7) items in the research questionnaire. The Exploratory Factor Analysis (EFA) results in Table 3.23 indicate the descriptive statistics for each of the given items measuring the employee's competence construct. Thus, the construct was measured with the use of an internal scale (Likert) (Awang et al., 2016; Bahkia et al., 2019; Rahlin et al., 2019), ranging from one (1) (strongly disagreed) to five (5) (strongly agree) as well as the given items statement, and its statement code. The mean and the standard deviation of the score for each item are presented in Table 3.23.

Table 0.23 The Mean and Standard Deviation for Items Measuring Environmental Uncertainties Construct

Serial Number	Items Code	Mean	Std. Deviation
1	EU1	9.10	.727
2	EU2	8.84	.787
3	EU3	9.09	.764
4	EU4	8.92	.759
5	EU5	9.01	.752
6	EU6	9.24	.706
7	EU7	8.70	.906

The Exploratory Factor Analysis (EFA), with the application of the extraction method of Principal Component Analysis (PCA) and varimax (variation maximization), rotation was carried out on these seven (7) items measuring the environmental uncertainties construct. The results in Table 3.24 show that Bartletts' Test of Sphericity is significant since the P-value is less than 0.05 (significant). Furthermore, the measure of sampling adequacy by Kaiser-Meyer-Olkin (KMO = 0.814) is excellent since it has exceeded the required threshold value of 0.6 (Awang, 2010; Rahlin et al., 2019). These two results (the KMO value greater than 0.6 and the Bartlett's Test P-value less than 0.05) signify that the data is adequate/suitable for the data reduction process in EFA (Awang, 2010; Rahlin et al., 2019; Bahkia et al., 2019).

Table 0.24 The KMO and Bartlett's Test Score for Environmental Uncertainties Construct

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.814
Bartlett's Test of Sphericity	Approx. Chi-Square	1268.242
	df	180
	Sig.	.000

3.10.1.11 The Total Variance Explained for Environmental Uncertainties Construct

The results presented in Table 3.25 indicate that there is only one (1) component emerged from the EFA technique based on the computed eigenvalue greater than 1.0. The eigenvalues are 8.124 for the component. The total variance explained for the construct is 66.462%. These seven (7) items measure about 66.462% for the environmental uncertainties construct. The total variance explained is acceptable since it has exceeded the minimum requirement of 60% (Awang, 2010; Bahkia et al., 2019; Rahlin et al., 2019). In other words, the items intended to measure the given construct should be able to measure at least a minimum of 60% of a given construct.

Table 0.25 The Total Variance Explained for Environmental Uncertainties Construct

Component	Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	**8.124**	35.549	35.549	3.566	17.832	**66.462**
Extraction Method: Principal Component Analysis.						

Likewise, Table 3.26 shows one (1) component/dimension emerged, and respective item code emerged from the EFA process. Hence, the factor loading for each of the items should be above 0.6 so as to be retained (Awang, 2010; Bahkia et al., 2019; Rahlin et al., 2019). Thus, any item that fails to achieve the minimum requirement for a loading factor of 0.6 should be deleted (Awang, 2010; Bahkia et al., 2019; Rahlin et al., 2019). Table 3.26 shows the items' code as well as their respective factor loading. No item was deleted since all the factor loadings are above 0.6, as required.

Table 0.26 Items that Fall Under Each Component and their Respective Factor Loading

Rotated Component Matrix	
Items Code	Component
	1
EU1	.744
EU2	.818
EU3	.791
EU4	.821
EU5	.795
EU6	.725
EU7	.728

3.10.1.12 The Internal Reliability for the Instrument Measuring Environmental Uncertainties Construct

The study computed the value of Cronbach's Alpha, which reflects the internal reliability of the retained items in measuring their latent construct. The internal consistency or internal reliability signifies how strong the given items hold together in their respective components in measuring their construct. Hence, the value of Cronbach's Alpha should be above 0.7 for the items to attain internal reliability (Awang, 2010, 2012). Table 3.27 shows the Cronbach Alpha for each component/dimension of employees' competence construct.

Table 0.27 The Internal Reliability for Environmental Uncertainties Construct

Component	N of Items	Cronbach's Alpha
Environmental Uncertainties	7	0.860

In addition, the Cronbach value in Table 3.27 shows that the items have good/suitable internal reliability for measuring each component of the environmental uncertainties construct (Cronbach > 0.7). Largely, the Cronbach's Alpha for the whole seven (7) items is 0.860.

3.10.1.13 The EFA Procedure for Sustainability Construct

This construct was measured using six (6) items in the research questionnaire. The Exploratory Factor Analysis (EFA) results in Table 3.28 clearly indicate the descriptive statistics for each of the given items measuring the sustainability construct. Thus, the construct was actually measured with the use of an internal scale (Likert) (Awang et al., 2016; Bahkia et al., 2019; Rahlin et al., 2019), ranging from one (1) (strongly disagreed) to five (5) (strongly agree) and the given items statement and its statement code. The mean as well as the standard deviation of the score for each item is revealed in Table 3.28.

Table 0.28 The Mean and Standard Deviation for Items Measuring Sustainability Construct

Serial Number	Items Code	Mean	Std. Deviation
1	SUS1	8.47	.720
2	SUS2	8.62	.954
3	SUS3	8.59	.943
4	SUS4	8.75	.819
5	SUS5	8.81	.788
6	SUS6	8.84	.964

The Exploratory Factor Analysis (EFA), with the application of the extraction method of Principal Component Analysis (PCA) and varimax (variation maximization), rotation was conducted on these six (6) items measuring the sustainability construct. Thus, the results in Table 3.29 revealed that Bartletts' Test of Sphericity is significant with the required P-value of less than 0.05 (significant). Additionally, the measurement of the sampling adequacy by Kaiser-Meyer-Olkin (KMO = 0.722) is excellent since the threshold value is above 0.6, as required (Awang, 2010; Rahlin et al., 2019). Thus, the two results (Bartlett's Test P-value is less than 0.05 and the KMO value is above 0.6). This signifies that the data is adequate/suitable for further data reduction in EFA (Awang, 2010; Bahkia et al., 2019; Rahlin et al., 2019).

Table 0.29 The KMO and Bartlett's Test Score for Sustainability Construct

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.722
Bartlett's Test of Sphericity	Approx. Chi-Square	1097.780
	df	126
	Sig.	.000

3.10.1.14 The Total Variance Explained for Sustainability Construct

The results in Table 3.30 revealed that only one (1) component derived from the EFA procedure in accordance with the computed eigenvalue which is greater than 1.0. Thus, the eigenvalues are 6.087 for the component. In other words, these six (6) items measure about 61.524% of the sustainability construct. The total variance explained is acceptable since it exceeded the minimum requirement of 60% (Awang, 2010; Bahkia et al., 2019; Rahlin et al., 2019). In other words, the items intended to measure a particular construct should be able to measure a minimum of 60% of the given construct.

Table 0.30 The Total Variance Explained for Sustainability Construct

Component	Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	**6.098**	35.870	35.870	3.965	23.325	61.524
Extraction Method: Principal Component Analysis.						

Furthermore, Table 3.31 shows the components and the respective item codes derived from the EFA process. Thus, the factor loading for each item should be above 0.6 so as to be retained (Awang, 2010; Bahkia et al., 2019; Rahlin et al., 2019). Hence, for any item that fails to achieve the required factor loading of 0.6, such item needs to be deleted (Awang, 2010; Bahkia et al., 2019; Rahlin et al., 2019). Table 3.31 shows the items' code and their respective factor loading. Consequently, no item was deleted since their factor loading exceeded 0.6 as required.

Table 0.31 Items Under Each Component and Respective Factor Loading for Sustainability Construct

Rotated Component Matrix	
	Component
Items Code	1
SUS1	.791
SUS2	.765
SUS3	.830
SUS4	.734
SUS5	.788
SUS6	.733

3.10.1.15 The Internal Reliability for the Instrument Measuring Sustainability Construct

In the final stage, the study computed the value of Cronbach's Alpha, which replicates the internal reliability of the retained items in measuring their latent construct. The internal consistency or internal reliability shows how strong the given items hold together in their respective components in measuring their construct. Hence, the value of Cronbach's Alpha should be above/greater than 0.7 for the items to be able to achieve internal reliability (Awang, 2010, 2012). Table 3.32 indicates the Cronbach Alpha for each component of the sustainability construct.

Table 0.32 The Internal Reliability for Sustainability Construct

Component	N of Items	Cronbach's Alpha
Sustainability	6	**0.827**

The Cronbach value presented in Table 3.32 revealed that the items have good/suitable internal reliability for measuring sustainability construct (Cronbach > 0.7). Again, the Cronbach's Alpha for the whole six (6) items is 0.827.

3.10.2 Summary of Pilot Test Results

The reliability analysis is a technique used to test the measuring items in order to have confidence in the items measuring each construct and also to make sure of the degree to which they are error-free. Thus, Cronbach's Alpha is the most popular measure of the reliability of items in a given construct. Hence, the acceptance value of Cronbach's Alpha differs based on several authors in determining the reliability of items in a given construct. According to Kerlinger & Lee (2000), a Cronbach's Alpha value that exceeds 0.5 should be considered for valid internal consistency reliability. In addition, Sekaran (2003) and Awang (2012) suggested that a Cronbach's Alpha of 0.6 provides a more reliable measure of internal consistency. In this light, a score of (0.70) and above signifies that an instrument possesses a high-reliability standard. As such, it is considered in this study. Table 3.33 shows the summary of pilot test results for all the study constructs,

Table 0.33 Summary of Pilot Test Results for All Constructs

Construct	Dimensions	Items	Overall Reliability	Total Variance Explained	KMO
Tangible Resources	1	9	0.942	72.656	0.912
Intangible Resources	1	10	0.809	73.194	0.715
Dynamic Capabilities (Digitalisation and Humanisation)	2	21	0.965	78.064	0.862
Environmental Uncertainties	1	7	0.860	66.462	0.814
Sustainability	1	6	0.827	61.524	0.722

The summary of the pilot test results in Table 3.33 showed that all components possess good internal reliability since Cronbach's values have exceeded the threshold of (0.7) and each item has a factor loading value exceeded (0.60) and was loaded on its latent variable without overlapping with the other latent variables. The table has also shown that all reliability measures have gone beyond the minimum recommended value of (0.6) as such, remained reliable. Hence, suitable to proceed with the data collection and analysis of the main field study data (Awang, 2012; Sekaran, 2003).

3.11 ACTUAL FIELD STUDY

The field study was conducted based on the study's research methodology (Cresswell, 2018). There are different ways of conducting a field study, such as using postal questionnaires, personal and face-to-face interviews, personally distributed questionnaires, and telephone interviews (Awang, 2012; Sekaran & Bougie, 2010). The limitation of the questionnaire is the ability to fully retrieve the distributed questionnaires. Thus, it is obvious that the main challenge of this research work is the ability of the researcher to retrieve the distributed questionnaires with a good rate of return. Hence, the researcher used personally administered questionnaires in order to increase the response rate. Thus, this investigation is required to lead the real study to validate the items through the CFA procedure. Prior to the period of data collection, the researcher seeks permission from owners of the selected SMEs to conduct the field survey.

Accordingly, after receiving the approval, the researcher submitted the questionnaires to the various respondents. The questionnaires were collected after completion by the respondents. Likewise, the respondents were given two weeks to be able to complete the questionnaires. Some of the steps considered while conducting the survey were as follows. First, the data collection was administered through the various owners of SMEs in Malaysia. Simultaneously, respondents were given an informed consent form and a cover letter which provided insights about the aim of the questionnaire and the reason behind the questionnaire. Second, the respondents were asked to answer the questions objectively and honestly. The researcher also informed the respondents that their answers would be only used for answering the research questions and be kept anonymous and confidentiality. Third, respondents were given a clear understanding that they were permitted to conclude whether to remain or withdraw from the study or decline to answer any question. In this light, they are allowed to withdraw at any point. There was no single respondent who withdrew from participating in the study.

3.12 DATA ANALYSIS PROCEDURE

The Statistical Package for Social Science (SPSS 22) and SEM-AMOS version (24) were utilised to analyse statistical data. To ensure effective data representation, an examination of data entry was conducted to avoid missing data and ensure completeness of the data before performing the actual analysis. The demographic

information of the respondents was tabulated and interpreted. The frequency distribution was used to tabulate the number of responses for each question and the descriptive analysis for each variable involved in the study.

The statistical analysis section is divided into three sub-sections which include the Exploratory Factor Analysis (EFA), the Confirmatory Factor Analysis (CFA), and Fit Indices. The EFA was conducted using the data obtained from the pilot study to identify the underlying factor structure of the data and also test the reliability of the research instruments. The confirmatory Factor Analysis was also conducted to test the dimensionality and validity of the measurement model, while SEM was performed to test the study hypotheses and mediation, and moderation testing.

3.13 DATA PREPARATION: SCREENING AND CLEANING THE FIELD DATA

The data screening and cleaning strategies performed on the field data included examining missing data, response bias, outliers' detection, normality test, and common method variance. The results of the data screening and cleaning and its clarification on the field data are presented in the following segments. Data cleaning is vital to ensure the results obtained are accurate. Missing data would occur if the study participants declined or avoided answering any question in the questionnaire. Hence, the researcher employed three preliminary steps to check errors and other verifications to make sure that the collected data are suitable for further analysis.

Data editing is seen as the process of examining the collected raw data to indicate errors, omissions, and coding (Kothari & Garg, 2014). According to Awang, (2012), data editing is considered as a method used in separating raw data from errors which might easily occur in the process of data collection or sampling procedure. The main objective of data editing in this research work is to improve the accuracy of the data in a way of checking certain omissions such as inconsistence responses or blank responses. Awang (2012) maintained that data coding implies how each response is recognised and categorised with a numerical score or symbol. Thus, codes are largely expressed as rules for interpreting, classifying and recording the data (Hoque, 2017). According to Kothari & Garg (2014), coding is the system of transmitting symbols or numerals to respond in such a way that answers can easily be replaced into a limited number of categories.

In the same vein, Awang (2012) postulated that coding is the procedure employed in transcribing data from the questionnaire into the computer. Hence, after the process of editing and cleaning the raw data, the process can be taken into the next stage which is data entry. Data entry can be defined as the simple data input in the related database fields through a human input device such as a keyboard, mouse voice recognition software or dictation software. In this study, data entry implies the direct input of the coded data into the statistical software that eventually allows the researcher to convert the raw data into appropriate information. Visual scan was also used in this study so as to reduce data entry errors. Thus, at the preliminary stage, all entries were checked case by case, and also the accuracy of the data entry into the data set was confirmed error-free. In this regard, the data were analysed to obtain the descriptive statistics, distribution, mean and standard deviation.

3.14 DESCRIPTIVE STATISTICS

Descriptive analysis is a statistical technique used in presenting statistical information that describes its measures of central tendency, measures of dispersion, frequency distributions and percentages (Ho, 2006). The descriptive analysis of all the variables involved in this study was conducted using the IBM SPSS version 24 software. Respondents' demographic information like gender, age, marital status, work experience, income, and education level, were also measured in the descriptive analysis.

3.15 MEASUREMENT MODEL: CONFIRMATORY FACTOR ANALYSIS

Confirmatory Factor Analysis (CFA) is a validation procedure via the measurement model. CFA is very essential to ensure that the instrument employed is suitable for the current study (Harrington, 2008). This type of analysis requires the number of components, which items reflect the component, and the correlation between the components (Thompson, 2004). This procedure was made before using Structural Equation Modeling (SEM) for all the latent constructs (Awang, 2012, 2015; Shih-I, 2011). Chua (2009) highlighted that Confirmatory Factor Analysis (CFA) is employed to check the validation of convergent and discriminant validity after Exploratory Factor Analysis (EFA). To conduct CFA, There are two techniques: Individual CFA and Pooled CFA. Thus, it has been suggested that the CFA can easily be performed for

complicated models by assessing each measurement model in the construct separately and combining them at the final stage by performing the pooled CFA when all constructs achieved the respective thresholds of reliability and validity (Awang et al., 2018; Mahfouz et al., 2019; Raza & Awang, 2020).

In this study, the CFA procedure was conducted separately for every construct. Thus, after the assessment of the individual construct, the researcher decided to combine all latent constructs and performed the pooled CFA to measure the discriminant validity among the given constructs. Before modelling the structural model and executing SEM, the scientist proved that all constructs involved in the model are discriminant of each other or they are not highly correlated, especially between the exogenous constructs (Afthanorhan et al., 2017; Awang et al., 2015; Kashif et al., 2016). In CFA, three main indicators – unidimensionality, validity and reliability – need to be examined before proceeding to the other stages. If all the requirements from these three indicators are achieved, then the data are considered suitable for further analysis. Hence, if the two exogenous constructs are highly correlated (correlation greater than 0.85), then there exists a serious problem called 'multi-collinearity', and the study needs to utilise their respective remedial measures (Awang, 2015).

3.15.1 Unidimensionality

Unidimensionality is seen as a set of indicator variables which is explained by a single construct and it is usually achieved when the factor loading has fulfilled its requirements (Hair et al., 2010). For unidimensionality to be achieved, the factor loading with a low value must be removed from the model (Awang, 2015). While in a situation where the factor loading is newly created, acceptable factor loading should be 0.6 and above. Thus, it has been suggested that the accepted value for factor loading is above 0.70, but then the value between 0.40 and 70 should also be considered, and values below 0.40 should be removed completely from the model (Hair et al., 2010).

Tabachnick & Fidell (2013) maintained that factor loading above 0.71 is considered to be excellent, 0.63 is very good, and 0.55 is good. 0.45 is fair, and 0.32 is considered as weak. In the same vein, Awang (2015) cautioned that only 20 per cent of the items in the model should be deleted. In this research, a factor loading with a minimum value of 0.50 was considered, as suggested by Awang (2015).

3.15.2 Validity

In a measurement model, three major types of validity need to be properly examined, namely, construct validity, convergent validity and discriminant validity. Hence, all these validities have different functions and must be achieved before proceeding with structural equation modelling (Henseler et al., 2009; Ringle et al., 2012). The three aspects of validity are elaborated as follows,

3.14.2.1 Convergent Validity

Convergent validity implies the degree to which the scale correlates positively with other measures of the same construct, and it is an extent to which the entire items in a measurement model become statistically significant (Wang et al., 2015). According to Sekaran & Bougie (2010), convergent validity is a situation in which a positive and significant relationship exists between two separate sources that respond to the comparable measure, and convergent validity is determined. Hair et al. (2010) maintained that there are different methods relating to convergent validity, such includes the loading factor, which standardised loading estimates to be 0.5 and above. Likewise, it can be confirmed by examining the Average Variance Extracted (AVE) for each construct in a given study (Awang, 2014, 2015; Hair et al., 2010). Hence, in order to achieve convergent validity, the value of AVE must be equal to or more than 0.5 (Awang, 2014, 2015; Hair et al., 2010). The AVE is assessed by the formulae $AVE=\sum K^2/n$, where the factor loading of each item is expressed by K, and the number of items is expressed by n. This study set 0.5 as the minimum requirement of AVE in achieving convergent validity, as suggested by Awang (2014, 2015) and Hair et al. (2010).

3.14.2.2 Construct Validity

Construct validity is seen as the observed items representing the latent construct, which is actually related to the accuracy of measurement (Hair et al., 2010). Hence, the achievement of the fitness indexes in a measurement model is considered construct validity (Awang, 2015). In CFA, the validity of a construct can easily be seen by matching the fit indices, including the chi-square ($\chi 2$), normed chi-square, $\chi 2/df$ ($3.0 \leq \chi 2/df \leq 5.0$), as well as the goodness of fit (Schumaker & Lomax, 2010). Awang (2015) maintained that parsimonious fit, incremental fit and absolute fit are the main categories of fit indices. This study considered the minimum requirements

for one fitness index from each category of model fit, as suggested by Hair et al. (2010) and Awang (2015). Hence, this study utilises Root Mean Square of Error Approximation (RMSEA) = 0.08 or lower, Comparative Fit Index (CFI) = 0.90 or higher, Tucker-Lewis Index (TLI) = 0.90 or higher, Incremental Fit Index (IFI) = 0.90 or higher, and Chi-Square Degree of Freedom (Chisq/df) = less than 3.0 for the construct validity.

3.14.2.3 Discriminant Validity

Discriminant validity is the determination of a measure that may not correlate with other constructs and from which it is assumed that differences (Hair et al., 2010; Malhotra, 2002). Likewise, Awang (2015) and Hair et al. (2010) maintained that there are certain requirements for ensuring discriminant validity, namely, the measurement model does not have any redundant item, the correlation between independent variables does not exceed 0.85, and it must also be lesser than the square root of AVE (Henseler et al., 2014). In order to fulfil this condition, AVE for every construct must be compared with its squared correlation in the model of this study.

3.15.3 Reliability

The reliability of a measure in any given study indicates the degree to which the items used to measure the concept are error-free and also produce the actual value (Hair et al., 2010). Kenneth (2005) also suggested that reliability implies the probability for t the same result to occur if the measure is replaced with the same item under the same condition. Whereas Sekaran & Bougie (2010) maintained that reliability in social science is challenging as human behaviour is never static, but reliable measurement shows its stability and consistency in measuring the underlying concept in different conditions. Likewise, Awang (2014) and Field, (2009) claimed that reliability indicates how reliable and accurate is the measurement model to measure the proposed latent construct.

Thus, to verify the reliability of the instrument for tangible resources, intangible resources, dynamic capabilities (digitalisation and Humanisation), environmental uncertainties, and sustainability constructs in this study, Composite Reliability (CR) was utilised. Thus, it has been suggested that a CR value of 0.60 or higher is required to achieve construct reliability (Awang, 2015). Construct reliability depends on the value of CR based on the given formula: $CR = (\sum K)^2 / [(\sum K)^2 + (\sum 1-$

K^2)], where factor loading of each of the items is expressed by K (factor loading of every item). Likewise, Hair et al. (2010) maintained that a CR value of 0.7 and above is believed to indicate good reliability. Table 3.34 shows the formula for calculating AVE and CR.

Table 0.34 The Formula for Computing AVE and CR

AVE = $\sum K^2 / n$	K= factor loading of every item and
CR = $(\sum K)^2 / [(\sum K)^2 + (\sum 1-K^2)]$	N= number of items in a model

Source: (Awang, 2015; Awang et al., 2018)

3.15.4 The Assessment of Normality for the Data Set

Normality tests can easily be considered as a conventional issue in the evaluation methodology of data analysis (Bai & Ng, 2005). Data appropriation with either a profoundly slanted nature or with high kurtosis presents non-ordinariness, which successfully influences estimation or detail (Hall & Wang, 2005). Non-typicality may exist in view of the nearness of variance cases in the informational index. As highlighted by Tabachnick and Fidell (2001),

> *a special case is a case with such an extraordinary motivator on one variable (a univariate variance) or such an unusual mix of scores on at any rate two elements (multivariate exception) that they misshape insights*

After that, an evaluation of data normality and inspection for variance cases can be made. Moreover, according to Kline (2010), Estimating skewness and kurtosis are strategies that a distribution can be non-normal either unmistakably or together in a single variable.

Skewness implies that the figure of unimodal distribution is unbalanced concerning its mean. Positive skewness implies that most of the scores are below the mean, whereas negative scores show just the opposite. Positive kurtosis demonstrates increasingly massive ends and a higher pinnacle, while negative kurtosis mirrors the inverse. For a sample size exceeding 200, the Skewness ought to be in the scope of -

1.5 to +1.5, then the data are normally distributed (Awang, 2014, 2015; Awang et al., 2018). For a sample size exceeding 200, the Kurtosis should be in the range of -3 to +3, and the data are normally distributed (Awang et al., 2018).

3.15.5 Assessing the Fitness of the Measurement Model

In other to obtain the measurement model fit, several indicators of goodness-of-fit have been used as a rule for the current examination. When all the requirements have been satisfied, there are three types of good-of-fit estimation: incremental fit indices, parsimony fit indices and absolute fit indices (Hair et al., 2014). First, the incremental fit indices, as specified by Hair & et al. (2014), incremental fit indices are not quite the same as the absolute fit indices since they assess how well the estimated model fits relate to some alternative baseline model. The baseline model is referred to as a null model. Incremental fit indices can be evaluated based on several indices: Normed Fit Index (NFI), Adjust Goodness of Fit Index (AGFI), Comparative Fit Index (CFI), and Tucker-Lewis Index (TLI). Second, the parsimony fit indices are intended to give information about which model among a set of competing models is the best, where the fewer the estimated parameters utilised in the model, the greater the parsimonious of the model (Hair et al., 2014). The parsimony fit index is rated by Chi-Square/df. Third, the absolute fit indices, as highlighted by Hair & et al. (2014), absolute fit indices are the essential appraisal to perceive how well the model fits observed in the data. In this classification, absolute fit indices are rated by a few indices to be specific: Chi-square (x^2), Normed chi-square (x^2/df), Root Mean Square Residual (RMSR), Root Mean Square Error of Approximation (RMSEA), and Goodness-of-fit (GFI).

Although researchers are still uncertain about the best fitness indexes to be utilised, it is generally acknowledged to utilise at least one fitness index from every classification of model fit (Hair et al., 1995, 2010, 2014; Holmes-Smith et al., 2006). Table 4.40 introduces the synopsis of the fitness indices classification and its degree of acknowledgement. As indicated by Awang (2015), the most suggested indices that are much of the time detailed in the progress of writing are Root Mean Square of Approximation (RMSEA), Goodness-of-Fit-Index (GFI), Comparative Fit Index (CFI), and Normed Chi-Square (x^2)/df. Table 3.35 shows the index categories and their level of acceptance.

Table 0.35 Fitness Index Category and the Level of Acceptance

Types of Measure	Fit Index	Recommended Value
Absolute Fit Index	Chi-Square Statistic (x^2)	P-value > 0.05 Not applicable for large sample size (more than 200)
	Root Mean Square of Approximation (RMSEA)	<0.08
	Goodness-of-Fit-Index (GFI)	>0.90
Incremental Fit Index	Adjusted Goodness of Fit Index (AGFI)	>0.90
	Normed Fit Index (NFI)	>0.90
	Tucker-Lewis Index (TLI)	>0.90
	Comparative Fit Index (CFI)	>0.90
Parsimony Fit Index	Chi-Square/ df	Chi-Square/df < 3.0

Source: (Awang, 2015; Awang et al., 2018)

The recommended indexes are in bold, as they are frequently reported in the literature.

3.15.6 The Structural Model and Structural Equation Modelling (SEM)

After completing the CFA by ensuring all the values have met the requirement for reliability as well as validity, the study can conclude that the measurement model of the whole constructs involved in the research work has effectively been validated as required (Awang, 2015; Mohamad et al., 2019; Sarwar et al., 2020). The next step involved assembling the entire constructs into the structural model to perform Structural Equation Modeling (SEM). In addition, the constructs must be arranged from left to right. Thus, the exogenous constructs are often fixed on the left side, followed by the mediator construct in the middle and the moderator at the bottom of the model, while the endogenous construct is often fixed on the right side of the research model (Awang, 2015; Mohamad et al., 2019; Sarwar et al., 2020).

3.15.7 Structural Equation Model

Structural Equation Modeling (SEM) is considered a second-generation multivariate analysis technique grounded on some complications from the traditional Ordinary Least Squares (OLS), mainly when dealing with latent constructs (Awang, 2014, 2015; Hair et al., 2010). According to Mueller (1996) and Snoj et al. (2004), SEM application is usually used in social sciences mainly when assessing hypotheses of underlying effects, and also turned out to be an influential analytical instrument in social science research for the past few decades (Awang, 2015). Largely, SEM is utilised in testing a model and also explores the inter-relationship in the middle of the latent constructs in the model (Awang, 2015; Mueller, 1996; Snoj et al., 2004). It has been revealed that, unlike other multivariate techniques, SEM empowers the assessment of multiple interconnected dependence relationships, as well as integrating latent constructs that are not assessed directly and, more essentially, defining a model (Awang, 2015; Hair et al., 2006).

Moreover, SEM is mostly concerned with the explanation, and it is regarded as the most suitable statistical instrument for theory testing or any confirmatory studies. It is an influential option that takes into consideration of the correlated independents, measurement error as well as multiple latent independents (Byrne, 2001).

In SEM, there are two types of sub-models, namely, the measurement model and the structural model. The measurement model usually describes the relationship between an observable indicator variable and a latent variable. On the other hand, the structural model defines the latent construct associations and observed variables that are not latent variable indicators (Hoyle, 2012). Likewise, the structural model in SEM is a path analysis model. Hence, CFA and path analysis can all be considered SEM. Also, in path analysis under SEM, the independent variables are considered exogenous, while the dependent variables are regarded as endogenous constructs. Thus, the exogenous constructs are those constructs that influence the other constructs and are not influenced in the model by other constructs, whereas the endogenous constructs reflect those constructs that are affected by exogenous constructs and endogenous constructs of the model (Awang, 2014, 2015). Hence, exogenous and endogenous constructs are all latent constructs in this research work.

3.16 HYPOTHESES TESTING

At this point, the study needs to test the hypothesised structural relationships among the constructs, namely, tangible resources, intangible resources, dynamic capabilities (digitalisation and Humanisation), environmental uncertainties, and sustainability. As discussed in Chapter Two (2), two direct hypotheses, two mediation, and two moderation hypotheses were developed. Table 3.36 describes the outline of the hypotheses of the current investigation.

Table 0.36 The Summary of Hypotheses and its Statistical Analysis

Proposed Hypotheses	Details	Statistical Test
H1	Tangible resources have a significant relationship with Sustainability	Path Analysis in SEM
H2	Intangible resources have a significant relationship with Sustainability	Path Analysis in SEM
H3	Dynamic capabilities have a significant relationship with Sustainability	Path Analysis in SEM
H4	Dynamic capabilities mediate the relationship between tangible resources and Sustainability.	Path Analysis in SEM and Bootstrapping
H5	Dynamic capabilities mediate the relationship between Intangible resources and Sustainability.	Path Analysis in SEM and Bootstrapping
H6	Environmental Uncertainties moderate the relationship between Tangible resources and Sustainability	Path Analysis in SEM
H7	Environmental Uncertainties moderate the relationship between Intangible resources and Sustainability	Path Analysis in SEM

3.17 ANALYSIS OF MEDIATING VARIABLE

The mediating effect appears when the third construct mediates between two other related constructs. To break down the mediation influence, it is usually analysed

through direct and indirect influence (Hair et al., 2010). A direct influence is the direct relationship between the independent construct and the dependent construct. Meanwhile, indirect influence is when the link between independent and dependent constructs is not straightforward and requires a mediating construct (Awang, 2015). Afterwards, the mediator variable serves as a mechanism for providing a clear explanation regarding the connection between the dependent and independent variables (Mackinnon, 2008).

The direct influence between the independent and dependent constructs and the indirect effect consists of the influence of the independent variable and dependent variable that influences in a roundabout way through the mediator variable. Thus, the mediation influence is relevant if the direct effect is statistically significant. Consequently, the direct effect is estimated through the estimation of the beta coefficient. A mediator is useful in associating between two different constructs (Hair et al., 2010). According to Hair & et al. (2010), testing the mediation effect requires significant correlations in each of the three constructs. Interestingly, Kenny et al. (2003) suggested that mediation can be the outcome of one of two options: partial mediation or full mediation.

The circumstance for partial mediation usually transpires when the hypothesis testing for regression coefficient P1 is significant, and another two hypotheses testing for regression coefficient P2 and P3 are also significant (Awang, 2015; Awang et al., 2018). The full mediation occurs when the hypothesis testing for regression coefficient P1 is significant, the hypotheses testing for regression coefficient P2 is also significant, and the hypothesis testing for regression coefficient P3 is not statistically significant.

In recent times, bootstrapping has been applied as a procedure for confirming the values of the mediation analysis by testing the indirect effect (Awang, 2015). Hair & et al. (2016) maintained that "when testing mediating effects, experts must rather follow Preacher and Hayes (2004, 2008) to bootstrap the sampling distribution of the indirect effect, which works for simple and various mediator models". Preacher and Hayes (2008) asserted that if the estimations of indirect effect (upper bound/lower bound) do not overlap in the middle of demonstrating, there is mediation. Bootstrapping aims to compare the mediation outcomes with the bootstrapping outcomes. Largely, these two values must be equal. In case of any inconsistency, the estimate from the bootstrapping is appropriate (Awang, 2015). Based on these facts,

the current investigation has employed this strategy for bootstrapping the indirect influence, as suggested by Preacher & Hayes (2008).

3.18 ANALYSIS OF MODERATING VARIABLE

A moderating variable is a variable that stands to moderate the effect of an independent variable on the dependent variable (Awang, 2015). Social science researchers specifically describe moderators as the variables that interfere with the relationship between independent and dependent variables. The moderating effect occurs when the moderating variable alters the effect of the independent variable on the dependent variable. Hence, before introducing a moderator into a particular model, the relationship between the independent and dependent variables must exist, and it has to be significant (Awang, 2014, 2015; Hair et al., 2010). So, when the moderating variable enters the model, the causal effects would change due to some interaction effect between the independent variable and the moderating variable that just entered. Based on that, the effect of the independent variable on the dependent variable could either decrease or increase. In other words, the effect of the independent variable on the dependent variable would solely depend on the level of the moderating variable.

Thus, the circumstance for partial moderation usually occurs when the hypothesis indicating the moderating effect of a given variable in the relationship between independent and dependent variables is said to be significant and supported. Since the hypothesis of the main effect is also significant after introducing the moderator into the model. The circumstance for full mediation usually occurs when the hypothesis indicating the moderating effect of a given variable in the relationship between independent and dependent variables is not significant and not supported. Since the hypothesis of the main effect is not significant after introducing the moderator into the model.

3.19 CHAPTER SUMMARY

This chapter detailed the procedure for conducting this study. It presented a detailed description of the research design, data sources, data collection techniques and research instruments provided. Under the research instrument, the sources of the instruments were also stated. Accordingly, the data analysis procedure was extensively discussed, and an analysis of the pilot study result was presented in this chapter.

CHAPTER FOUR

DATA ANALYSIS AND FINDINGS

4.1 INTRODUCTION

This chapter discusses an in-depth analysis of the outcomes of the data that have been collected by employing quantitative methods, demographic profiling and descriptive statistics. The chapter also analyses how each construct of the measurement model is validated through CFA. Secondly, the analysis of the Structural Equation Modelling (SEM) on the mediating effect of dynamic capabilities and moderating effect of environmental uncertainties in the relationship between tangible resources, intangible resources and sustainability. Finally, the discussion of the research findings and a summary of the chapter is also presented.

4.2 RESPONSE RATE

Out of 348 offline survey questionnaires distributed, 318 questionnaires were returned, resulting in a response rate of approximately 91.3%. Meanwhile, out of the 120 questionnaires distributed online, only 20 were returned, resulting in a response rate of 16.6%. In this light, the total number of returned questionnaires (offline and online) is 338. 6 questionnaires were omitted from the analysis due to outlier cases. Subsequently, 332 questionnaires with a 72.2% response rate were used for the analysis. The sample size of n=332 was considered sufficient for this study as it (N=332) represents the population with a ratio of 10:1, as recommended by Hair et al. (1998) and Kline (2005). The mean value could replace missing data, but this can only be the case if the missing data is more than 5% of the total data required (Hair et al., 2010). The description of data collection and the response rate is shown in Table 4.1

Table 0.1 Summary of Data Collection and Response Rate

Response	Total
Distributed Questionnaires	468
Unreturned Questionnaires	130
Returned and Entered Questionnaires	338
Outlier	6

Usable Questionnaires	332
Response Rate	72.2%

4.3 DESCRIPTIVE ANALYSIS OF THE DEMOGRAPHIC PROFILE OF RESPONDENTS

The purpose of descriptive analysis is to examine quantitative data to obtain a better understanding of the target group. This type of analysis involves using statistical techniques and illustrations to analyse the data. According to Knapp (2013), descriptive analysis is an effective method for understanding data because it allows for the representation of information through the use of figures and graphs. In this particular study, descriptive analysis was used to collect data on SMEs in the form of numbers, percentages, mean, mode, median, range, variance, standard deviation, and minimum and maximum values. The researcher then used tables and figures to summarize and present the information gathered:

i. The demographics of the respondents (owners, managers, and employees) in this study included their age, gender, education, number of family members involved in the business, religion, years of business experience, skills and talents, legal form of the business, industry sector, location, year of establishment, annual sales turnover, number of employees, education level of employees, possession of trademarks, copyrights, or patents, partnerships with other businesses (B2B), types of support received, and operation status during the Covid-19 pandemic.
ii. This study included questions about tangible and intangible resources, dynamic capabilities (digitalisation and humanisation), environmental uncertainties, proactive and systematic risk assessment, and business sustainability.

Part A Demographic

A total of 338 responses were collected for this study. These responses included information about the demographic characteristics of the businesses, background information about the employees, and details about the business operations. Table 4.2 summarizes the frequencies for Part A of the questionnaire.

Table 4.2 Frequencies of Demographic Information (n = 338)

Variable	Category	Frequency	Percentage (%)
Gender	Male	233	68.90%
	Female	105	31.30%
Status	Single	21	6.20%
	Married	316	93.50%
	Others	1	0.30%
Age	20 – 29	35	10%
	30 – 39	110	32.50%
	40 – 49	116	34.30%
	50 and above	77	22.80%
Education	Primary School	2	0.60%
	Secondary School	139	41.10%
	Certificate/ Diploma	115	34.00%
	Undergraduate Degree	74	21.90%
	Postgraduate Degree	8	2.40%
Religion	Islam	242	71.60%
	Buddhism	62	18.30%
	Hinduism	25	7.40%
	Christianity	9	2.70%
Years in business	0 - 5 Years	77	22.80%
	6 - 10 years	177	52.40%
	More than 11 years	84	24.90%
Legal Form	Private Limited	110	32.50%
	Partnership	55	16.30%
	Sole Proprietorship	172	50.90%
	Others	1	0.30
Sector	Consumer	79	23.40%
	Hotel and Tourism	33	9.80%
	Technology	56	16.60%
	Plantation	24	7.10%
	Constructions	14	4.10%
	Properties	13	3.80%
	Trading/Services	92	27.20%
	Transportation	15	4.40%
	Others	12	3.60%
Sales Turnover Per Year	less than Rm 5 k	67	19.80%
	Rm 6k - RM 50 k	121	35.80%
	RM 51k - RM 100k	87	25.70%
	RM 101K - RM 200K	33	9.80%
	RM201k and above	30	8.90%

Table 4.2 Frequencies of Demographic Information (n = 338) continued (1)

Variable	Category	Frequency	Percentage (%)
Location	Kuala Lumpur	53	15.70%
	Selangor	38	11.20%
	Johor	48	14.20%
	Kedah	27	8.00%
	Kelantan	18	5.30%
	Perak	25	7.40%
	Negeri Sembilan	15	4.40%
	Pahang	19	5.60%
	Perlis	8	2.40%
	Penang	19	5.60%
	Sabah	6	1.80%
	Sarawak	4	1.20%
	Terengganu	22	6.50%
	Malacca	33	9.80%
	More than one state	3	0.90%
Number of Employees	1 - 9 employees	254	75.10%
	10 - 49 employees	82	24.30%
	More than 1000	2	0.60%
Family Members in B	0	237	70.10%
	1 – 5 members	94	27.80%
	6 - 10 members	7	2.10%
Education of Employees	Primary School	7	2.10%
	Secondary School	238	70.40%
	Certificate/ Diploma	42	12.40%
	Undergraduate Degree	22	6.50%
	Postgraduate Degree	8	2.40%
	None	21	6.20%
TM/CW	No	77	22.80%
	Yes	261	77.20%
Business Status in Covid	Yes, as usual	9	2.70%
	yes, on online platforms	130	38.50%
	Yes, in lower/limited scales	41	12.10%
	No, I shut down the business	158	46.70%

Based on Table 4.2, 233 out of 338 respondents are male (68.90%), and the remaining 105 are female (31.30%). This indicates that males have a greater involvement in business endeavours compared to females, who have a lesser involvement. Out of the 338 people surveyed, the majority were found to be married (93.50%), with only 6.20% being single and one divorced (n=316, n=21, and n=1, respectively)

The majority of respondents in the survey were between the ages of 40 and 49 (34.3%, n=116), followed by those between 30 and 39 (32.5%, n=110). There were also a significant number of respondents aged 50 and above (22.8%, n=77). The smallest group of respondents was those between the ages of 20 and 29 (10%, n=35). This data suggests that the majority of Malaysian SME owners are 40 years old and above, with a smaller proportion being from the younger generation, between 20 and 29 years old.

A majority of the 338 respondents surveyed held a secondary school education (41.10%, n=139), followed by those with a certificate/diploma (34.0%, n=115). Additionally, 21.90% of respondents (n=74) held an undergraduate degree, 2.40% (n=8) had a postgraduate degree, and only 0.60% (n=2) had completed primary school. Overall, it can be inferred that most of the respondents have at least a secondary school education and a significant minority hold higher degrees.

For religion, the data shows the religious background of 338 respondents surveyed. 71.60% (242) of the respondents are Muslim, 18.30% (62) are Buddhist, 7.40% (25) are Hindu and only 2.70% (9) are Christian. It can be inferred that the majority of the respondents are Muslim, followed by Buddhism, Hinduism, and Christianity. So, Muslim is the most popular religion among surveyed respondents. As for years of business experience of 338 respondents surveyed, the majority of respondents, 52.40% (177), are in business between 6 to 10 years. 24.90% (84) are in business for more than 10 years, and 22.80% (77) are in business for between 0 to 5 years. It can be inferred that the majority of respondents have moderate to extensive experience in business, and a minority have less than 5 years of experience. These results reflect better feedback for their experience in this study.

There are 172 respondents (50.90%) who answered that their legal form of the company is sole proprietorship, followed by 110 respondents (32.50%) are under private limited, and 55 respondents are under partnership (16.30%) and one other legal form (0.30%). This indicates that the majority of respondents have a legal form of sole proprietorship, followed by private limited and partnership, and only one has other legal forms.

In terms of sector, The largest percentage of respondents are in the trading and services sector (27.2%, n = 92). The next largest group is in the consumer sector (23.4%, n= 79). The technology sector has 16.6% of respondents (n= 56), followed by the hotel and tourism sector with 33 respondents (9.8%). Plantation, transportation,

construction, and properties sectors have 7.1% (n= 24), 4.40% (n= 15), 4.1% (n= 14), and 3.8% (n= 13) of respondents respectively. The smallest group, 3.6% (n=12), is in other sectors. Overall it shows that the majority of the respondents are from the trading/services and consumer sectors.

For the annual sales turnover of 338 survey respondents, the largest group of respondents, 35.8% (n=121), have sales between RM6k and RM50k per year. The next largest group, 25.70% (n=87), have sales between RM51k and RM100k per year. 19.8% (n=67) of respondents have sales of less than RM5k per year. 9.8% (n=33) of respondents have sales between RM101k and RM200k per year and 8.9% (n=30) of respondents have sales of RM201k and above. It indicates the majority of the respondents have a sales turnover between RM6k to RM50k per year, while a small percentage of respondents have a higher sales turnover above RM201k per year.

In terms of location, 53 respondents (15.70%) are located in Kuala Lumpur, followed by those who are located in Johor Bahru (14.20%, n=48), Selangor (11.20%, n=38), Malacca (9.80%, n= 33), Kedah (8.0%, n=27), Perak (7.40%, n=25), Terengganu (6.50%, n= 22), Pahang (5.60%, n= 19), Penang (5.60 %, n=19), Kelantan (5.30%, n= 18), Negeri Sembilan state (4.4%, n=15), Perlis (2.40%, n= 8), Sabah (1.80%, n= 6), Sarawak (1.20%, n= 4), and only 3 respondents are at more than one state (0.90%, n= 3). Most respondents, 70.10%, do not involve their family members in their business operations, while a smaller proportion, 27.8%, have between 1 and 5 family members involved, and only 2.1% have 6 to 10 family members involved. This indicates that a large majority of respondents do not involve their family members in their business operations.

Table 4.2 provides information on the background of the respondents' employees, including the number of employees and their education level. The majority of respondents, 75.10%, have between 1 and 9 employees working in their companies, while 24.30% have between 10 and 49 employees, and only a small proportion, 0.6%, have more than 1000 employees. The education level of employees is also provided in Table 5.2. 70.4% of respondents have employees with only secondary school education, 12.4% have employees with a certificate or diploma, 6.20% have employees with no education, 6.5% have employees with an undergraduate degree, 2.10% have employees with a primary school education and 2.40% have employees with a postgraduate degree. This suggests that the majority of the employees have a low level of education, with 70.40% having only secondary

school education. And the rest are fluctuated at different levels. 261 out of 338 respondents (77.20%) have a trademark and copywriting in their business compared to those who do not have the brand and copywriting (22.80%, n= 77).

During the Covid-19 pandemic, 46.7% of respondents shut down their business (n= 158), 38.5% operated using online platforms (n= 130), 12.1% operated at a lower and limited scale (n= 41), while only 2.7% continued to operate as usual (n= 9). Figure 5.2 illustrates the above descriptive information.

4.4 DESCRIPTIVE ANALYSIS OF THE STUDY CONSTRUCTS

Information concerning the mean, minimum value, maximum value and standard deviation of the data for the constructs in this research work is presented. Generally, the results show that the respondents have an adequate inclination regarding the variables under study (Harthling et al., 2012).

4.4.1 Descriptive Analysis of Tangible Resources (TR)

According to the statistics for Tangible Resources, the average score is 3.5 with a standard deviation of 0.917. This indicates that the respondents generally believe they have strong capabilities in generating revenue, maintaining financial records, having a favourable location, reaching customers, and using technology for their business. However, they seem to struggle to obtain funding from outside sources and secure loans or grants. (See Table 4.3)

Table 0.3 Descriptive Analysis of TR Construct

Variable	N	Mean	Std. Deviation
High ability to generate internal fund	338	3.43	0.78
High ability to generate external fund	338	2.54	0.763
High accessibility to external fund	338	2.65	0.825
Having proper records on financial reserves	338	3.54	0.751
Located in a strategic place and easy access to customers	338	4.55	0.714
Easy access to supplies and distributing channels	338	4.34	0.899
Having a clear organisational chart for better coordination	338	4.1	0.974
Using adequate technology in the business operations	338	3.12	1.28
Adapting modern technology advances in business	338	3.21	1.271
Overall	338	3.50	0.917

4.4.2 Descriptive Analysis of Intangible Resources (IR)

The mean score shown in Table 4.4 is 4.095 with a standard deviation of 0.977, indicating that a majority of respondents agreed that they have a sufficient workforce with relevant skills and knowledge. Additionally, they agreed that their business has well-managed human resources, positive relationships with local and international organisations and authorities, and strongly agreed on a reputation for high-quality products and services. Respondents also agreed that their business has adequate resources for research, product development, innovation, and change.

Table 0.4 Descriptive Analysis of IR Construct

Variable	N	Mean	Std. Deviation
Human resources equipped good knowledge and skills	338	4.45	0.807
The firm employs good soft and social skills	338	4.43	0.97
The firm employs hard and technical skills	338	3.26	1.302
The firm employs adequate knowledge on access database	338	4.14	1.051
A common organisational culture unites human resources	338	4.34	0.722
Having clear and effective human resource management	338	3.99	1.132
Having efficient relationships with local and international market	338	3.5	0.981
Having adequate capabilities for research and development	338	3.85	1.361
Products and services have outstanding branding in the customer mind	338	4.43	0.795
Having high-quality products and services among customers	338	4.56	0.652
Overall	338	4.095	0.977

4.4.3 Descriptive Analysis of Dynamic Capabilities - Digitalisation (DCD)

According to Table 4.5, most respondents rely on an ePOS system for sales tracking, payment management, and inventory monitoring. They strongly agreed on the significance of digital marketing as a valuable tool for their business, e-commerce platforms are essential for addressing environmental uncertainties and challenges, e-payment systems are dependable, user-friendly, and competitive, and digital technology is crucial for achieving a competitive edge and maintaining sustainability. The overall mean score for the DCD variable is 3.82 with a standard deviation of 1.063, indicating that SMEs recognize the importance of digitalisation for their business operations.

Table 0.5 Descriptive Statistics of DCD Construct

Variable	N	Mean	Std. Deviation
Adapting quickly to digital platforms in accessing customers	338	3.58	1.084
Digital marketing is crucial and highly useful	338	4.61	0.763
Business structure has adapted e-commerce activities	338	3.24	1.394
E-commerce platforms are highly crucial in responding towards environmental uncertainties and challenges	338	4.65	0.655
The firm utilizes e-payment system in the business	338	3.51	1.238
E-payment system is very reliable, easy, and competitive.	338	4.4	1.05
The firm is responding fast in adapting digital technology in the production and business operations	338	3.2	1.431
The firm uses the ePOS system to record sales, manage payments, and monitor inventory.	338	3.34	1.249
ePOS system is an efficient way of reducing operational cost and increasing efficiency of businesses.	338	3.64	1.031
Human resources are quickly acquiring skills and knowledge on Digitalisation.	338	3.46	1.062
Digital technology is crucial in gaining competitive advantage and maintaining sustainability	338	4.37	0.74
Overall	338	3.818	1.063

4.4.4 Descriptive Analysis of Dynamic Capabilities - Humanisation(DCH)

According to Table 4.6, the overall mean score for the DCH construct is 4.029 with a standard deviation of 0.865, indicating that all SMEs agreed on the importance of engaging in social responsibility, humanisation initiatives in advisory, coaching and support systems and strong leadership. The respondents also agree that these humanisation initiatives require a strong awareness and mindset changes among all staff/workers. Furthermore, companies need to continuously engage in organisational learning to achieve their ambitions for social responsibilities.

Table 0.6 Descriptive Statistics of DCH Construct

Variable	N	Mean	Std. Deviation
The engages in social responsibility initiatives	338	3.73	1.074
Social responsibility initiatives are crucial for business sustainability	338	4.16	0.868
Humanisationinitiatives are crucial in business operations	338	4.02	0.935
Humanisationinitiatives require strong awareness and mind changes	338	4.26	0.798
The firm provides fast and continuous support to the staff/worker	338	4.08	1.014
Social responsibility initiatives require dynamic organisational learning	338	3.78	0.763
Strong organisational learning capability ensures effective adjustment to dynamic of external environment	338	3.62	0.73
Humanisation initiatives require adequate skills and knowledge.	338	4.1	0.921
Strong leadership is crucial for social responsibility initiatives	338	4.51	0.681
Overall	338	4.029	0.865

4.4.5 Descriptive Analysis of Environmental Uncertainties (EU)

The EU construct score of SMEs, as shown in Table 4.7, has a mean score of 4.187 (SD = 0.866). This indicates that most SMEs acknowledge the impact of the EU on their tangible and intangible resources. Respondents strongly agreed on the importance of updating these resources to improve business operations, worker skills, marketing, and supply chains. However, they also agreed on the difficulty in determining the appropriate response. Furthermore, the EU is seen as a challenge to their business sustainability, as evidenced by the significant impact of the COVID-19 pandemic on operations, leading to a shift towards digitalisation and seeking support for business advice, motivation, and coaching.

Table 0.7 Descriptive Statistics of EU Construct

Variable	N	Mean	Std. Deviation
EU cause impact on existing resources	338	4.24	0.934
EU requires necessary changes on existing resources	338	4.46	0.888
EU cause difficulty in knowing what kind of response should be taken on the resources	338	4.39	0.906
EU challenges particular business sustainability.	338	4.32	0.742
The pandemic Covid-19 has had a tremendous impact on their business operations	338	4.15	0.867
The pandemic Covid19 causes adaption of digitalisation in my business operations	338	3.94	0.826
The Pandemic COVID-19 causes adaption of a stronger and enhanced support system	338	3.81	0.896

4.4.6 Descriptive Analysis for Sustainability

Table 4.8 presents a mean score of 3.97 with a standard deviation of 0.932. This signifies that small and medium enterprises strongly believe that their speed determines the success of business sustainability in adapting to environmental changes and that incorporating digitalisation into their strategy is crucial for long-term sustainability. Furthermore, the respondents agreed that having a solid support system and advisory services is important for maintaining sustainability over time and having strong capabilities within the business. They also concurred that flexible resources allow the business to handle any potential environmental challenges better.

Table 0.8 Descriptive Statistics for Sustainability Construct

Variable	N	Mean	Std. Deviation
The sustainability of a business depends on the speed of responses to environmental changes	338	4.64	0.654
Digitalisation initiatives ensures long term sustainability of businesses	338	4.57	0.772
Having good advisory and support system will assist businesses in being more sustainable in the longer term	338	4.68	0.549
Having strong capabilities ensure sustainability throughout the business operations.	338	3.88	0.949
The firm resources are always prepared to face potential environmental uncertainties.	338	3.04	1.33
The firm resources are made flexible in facing potential environmental uncertainties.	338	3.02	1.336
Overall	338	3.972	0.932

Table 4.9 displays the general descriptive statistics for all variables. The data in the table reveals that among the seven variables, EU, IR and DCH have higher means than the others. TR and RA have the lowest mean values. When comparing relative mean values, DCD and Sustainability are also included. Further analysis using inferential methods will be conducted to determine their significance and impact on the sustainability of Malaysian SMEs.

Table 4.9 Summary of the Descriptive Analysis for the Study Variables

Variables	**N**	**Mean**	**Std. Deviation**
Tangible Resources TR	338	3.50	0.53
Intangible Resources IR	338	4.10	0.67
Dynamic Capabilities- Digitalisation DCD	338	3.82	0.76
Dynamic Capabilities – HumanisationDCH	338	4.03	0.58
Environmental Uncertainties EU	338	4.19	0.56
Sustainability	338	3.97	0.63

4.5 CONFIRMATORY FACTOR ANALYSIS PROCEDURE FOR VALIDATING MEASUREMENT MODEL

Confirmatory Factor Analysis (CFA) refers to the validation procedure through the measurement model. The usage of CFA is important for ensuring that the instrument used is suitable for the current research (Harrington, 2008). This type of analysis requires the number of components, which items reflect the components, and the correlation between the components (Thompson, 2004). This procedure was performed before utilising Structural Equation Modeling (SEM) for all the latent constructs (Awang, 2012, 2015; Shih-I, 2011). According to Chua (2009), Confirmatory Factor Analysis (CFA) is used to validate convergent and discriminant validity after Exploratory Factor Analysis (EFA). Moss (2016) and Kashif et al. (2016) maintained that, as a technique of confirming the factor structure of a set of observed variables, CFA is needed as it enables the researcher to examine the hypotheses on the relationship between the observed and their latent constructs. As this study follows the two-phase technique of modelling and evaluation of the structural model, so the study

tested all measurement models of the latent construct for unidimensionality, validity and reliability previously modelling the structural model and executing SEM (Awang, 2014, 2015 Moss, 2016; Suhr, 2006). The validation process is called Confirmatory Factor Analysis (CFA) (Awang, 2014, 2015; Moss, 2016; Suhr, 2006).

Construct validity, discriminant validity and convergent validity are needed for the measurement model of the latent construct (Awang, 2014, 2015). Construct validity is measured throughout the measurement model's fitness indexes; the average variance extracted will be evaluated. The convergent validity and the discriminant validity are measured via the discriminant validity index summary (Awang, 2012, 2014; Hair et al., 2010). In terms of reliability, the composite reliability (CR) is evaluated. Thus, the composite reliability replaces Cronbach Alpha's internal reliability for analysis using structural equation modelling (Kashif et al., 2016; Tajudin & Saad, 2016). Likewise, the latent construct is deemed valid when its fitness indexes have achieved the three model Fit categories, namely, Absolute Fit, Parsimonious Fit and Incremental Fit (Awang, 2012, 2014, 2015).

This study has two exogenous constructs, one mediating construct, one moderator and one endogenous construct. The exogenous constructs are tangible resources and intangible resources. The mediating construct is dynamic capabilities (digitalisation and Humanisation), the moderator is (Environmental uncertainties), and the endogenous construct in the model is sustainability. Hence, the overall picture of the research framework is clearly demonstrated in Figure 4.1

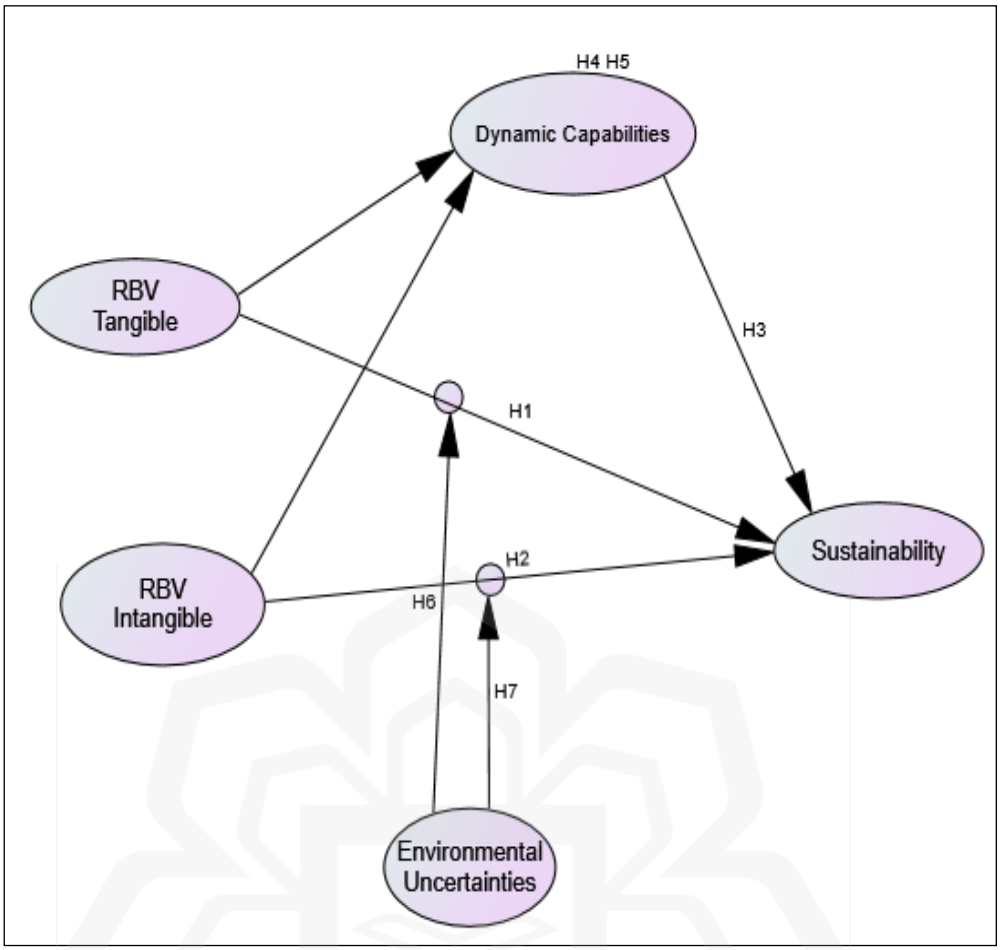


Figure 0.1 The Research Framework For The Study

As presented in Figure 4.1, there are several hypotheses regarding the inter-relationships among the constructs to be tested in this study. The hypothesis statements and method of analysis are presented in Table 4.10 for the direct effect hypothesis, the mediation and moderation effect hypothesis,

Table 0.10 The main hypotheses for the direct effect

	Direct Effect Hypothesis	Method of Analysis
H1	**Tangible resources** have a significant positive relationship with the sustainability of SMEs.	Path Analysis in SEM
H2	**Intangible resources** have a significant positive relationship with the sustainability of SMEs.	Path Analysis in SEM
H3	**Dynamic capabilities** have a significant positive relationship with sustainability.	Path Analysis in SEM
H4	**Dynamic capabilities** mediate the relationship between Tangible resources and the sustainability of SMEs	Path Analysis in SEM
H5	**Dynamic capabilities** mediate the relationship between Intangible resources and the sustainability of SMEs	Path Analysis in SEM
H6	**Environmental uncertainties** moderate the relationship between Tangible resources and the sustainability of SMEs.	Path Analysis in SEM
H7	**Environmental uncertainties** moderate the relationship between Intangible resources and the sustainability of SMEs.	Path Analysis in SEM

As shown in Figure 4.2, one construct in the model (Dynamic Capabilities) is of higher order (with two components) with different measuring items. Hence, the study decided to conduct the confirmatory factor analysis for every higher-order construct separately, and the results would be combined through the item-parcelling procedure. The constructs in the model and their respective components are presented in Figure 4.2.

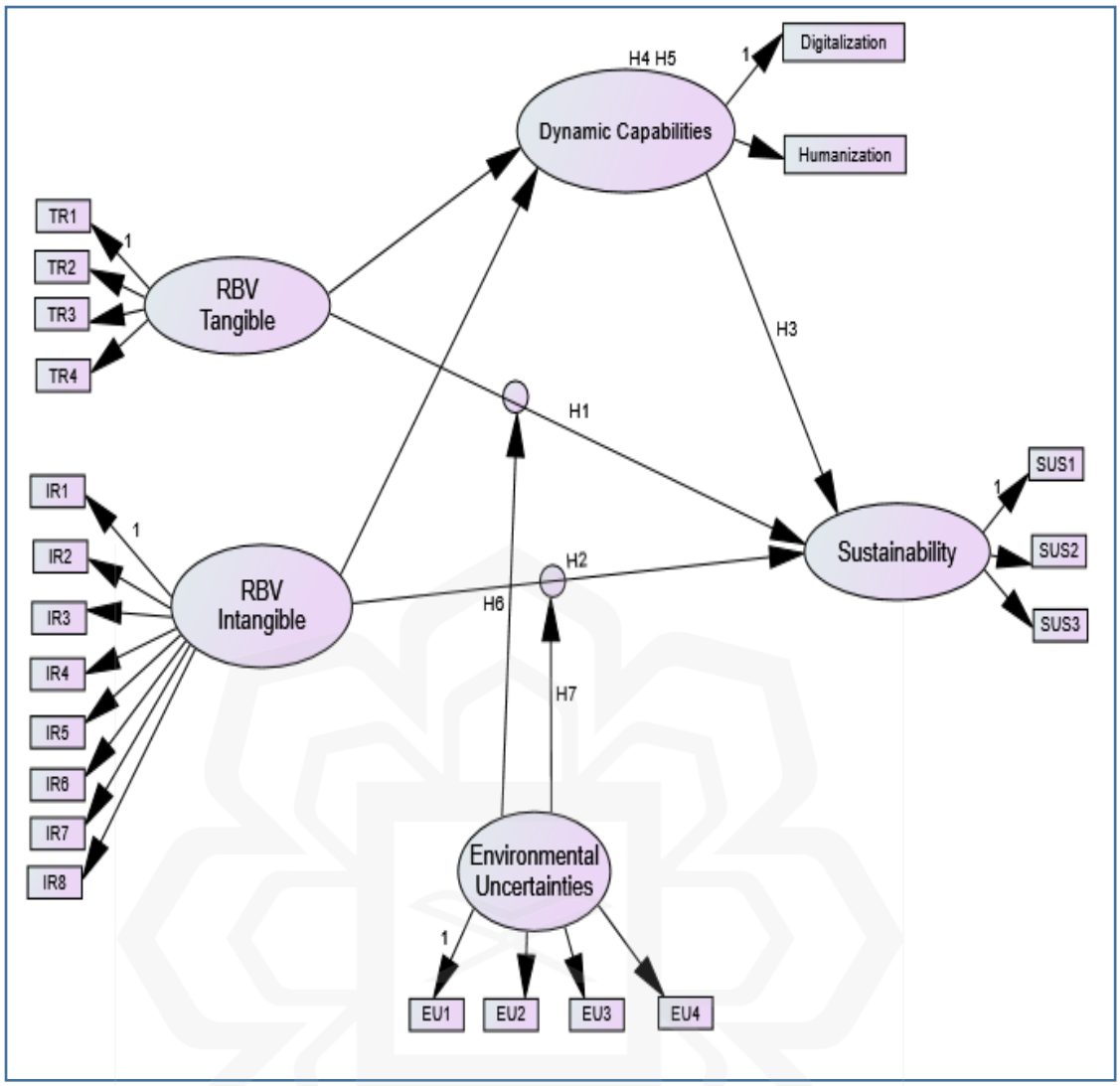


Figure 0.2 The framework presenting the constructs and sub-components for Dynamic Capabilities Construct

4.6 MEASUREMENT MODEL

A measurement model draws the connection between the measured items and their fundamental latent construct, which can be measured using Confirmatory Factor Analysis (CFA) (Awang, 2015; Asnawi et al., 2019; Yusof et al., 2017). In this way, preceding displaying the structural model and performing Structural Equation Modeling (SEM), the examination needs to validate all measurement models of latent constructs for Unidimensionality, Reliability, and Validity (Afthanorhan et al., 2017; Awang et al., 2015, Asnawi et al., 2019; Raza & Awang, 2020). As per Hair & et al. (2014), with CFA, any item that does not fit the measurement model because of low factor loading ought to be removed from the model. The scientists could run the CFA

for every measurement model independently or run the pooled measurement models at once. In any case, the CFA for pooled measurement models is highly suggested and more effective (Awang, 2015; Awang et al., 2018). Along these lines, the measurement model of this investigation was surveyed utilising the CFA for the measurement model for dynamic capabilities construct because it has sub-components and afterwards ran the pooled CFA for the entire model.

Hence, directing confirmatory factor analysis a few significant rules should be taken into contemplation earlier testing the SEM. Right off the bat, when running CFA, the scientist needs to check the fitness indices of the measurement model. On the off chance that the measurement model records acquired didn't accomplish the necessary level, factor loading for every item in the measurement model should have been checked (Awang, 2015). On the off chance that the fitness index is as yet not accomplished after low factor loading items have been removed, the model should be determined by taking a gander at the Modification Indices (MI) (Awang et al., 2018). As indicated by Awang (2015) and Awang & et al. (2018), the estimation of modification indices that are above 15 demonstrated that there were a couple of items in the redundant model. So as to take care of this issue, Awang (2015) and Awang & et al. (2018) asserted that scientists could erase one of the items that had lower factor loading or set the pair of redundant items as a free parameter estimate. Be that as it may, before any measurement item was erased, Hair & et al. (2014) proposed that it is essential to make a qualitative review or theoretical assessment. When the measurement model accomplishes the necessary degree of goodness of fit, at that point, the following stage is to acquire the validity and reliability of each of the constructs in the measurement model. Hence, the index fit categories and their respective thresholds for fitness indexes are given in Table 4.11.

Table 0.11 The Three Categories of Model Fit and Their Level of Acceptance

Name of category	Name of index	Level of acceptance
Absolute Fit Index	RMSEA	RMSEA < 0.08
	GFI	GFI > 0.85, Ideal if > 0.90
Incremental Fit Index	AGFI	AGFI > 0.85, Ideal if > 0.90
	CFI	CFI > 0.85, Ideal if > 0.90
	TLI	TLI > 0.85, Ideal if > 0.90
	NFI	NFI > 0.85, Ideal if > 0.90
Parsimonious Fit Index	ChiSq /df	Chi-Square/ df < 5.0, Ideal if < 3.0

***The indexes in bold are recommended since they are frequently reported in the literature
Source: Awang (2015) and Awang et al. (2018)

The framework for this investigation indicates that there are two exogenous constructs in particular: 1) Tangible resources and 2) Intangible resources, one mediator construct to be specific Dynamic capabilities (Digitalisation/Humanisation) with one moderator to be specific (Environmental uncertainties) and one endogenous construct in particular (Sustainability). The Confirmatory Factor Analysis (CFA) for validating the second-order constructs, specifically Dynamic Capabilities, was carried out earlier compared with the first-order constructs in the model. When approved, these second-order constructs will be parcelled (simplified) into first-order constructs through the item-parcelling technique. At that point, these parcelled (simplified) first-order constructs will be pooled with other first-order variables in the model for the pooled CFA technique. The pooled CFA is required to evaluate the discriminant validity among all constructs in the model preceding displaying the structural and playing out the SEM technique (Awang, 2015; Awang et al., 2018).

4.6.1 The Confirmatory Factor Analysis for Validating Dynamic Capabilities Construct

As previously clarified, the Dynamic Capabilities construct is a second-order construct with two components or sub-constructs, as appeared in Figure 4.3. The fitness indexes for the whole construct the factor loading for every component (sub-construct) just as the factor loading for every item is introduced. Thus, utilising the

outcomes in Figure 4.3, the researcher could assess the reliability and validity of this specific construct.

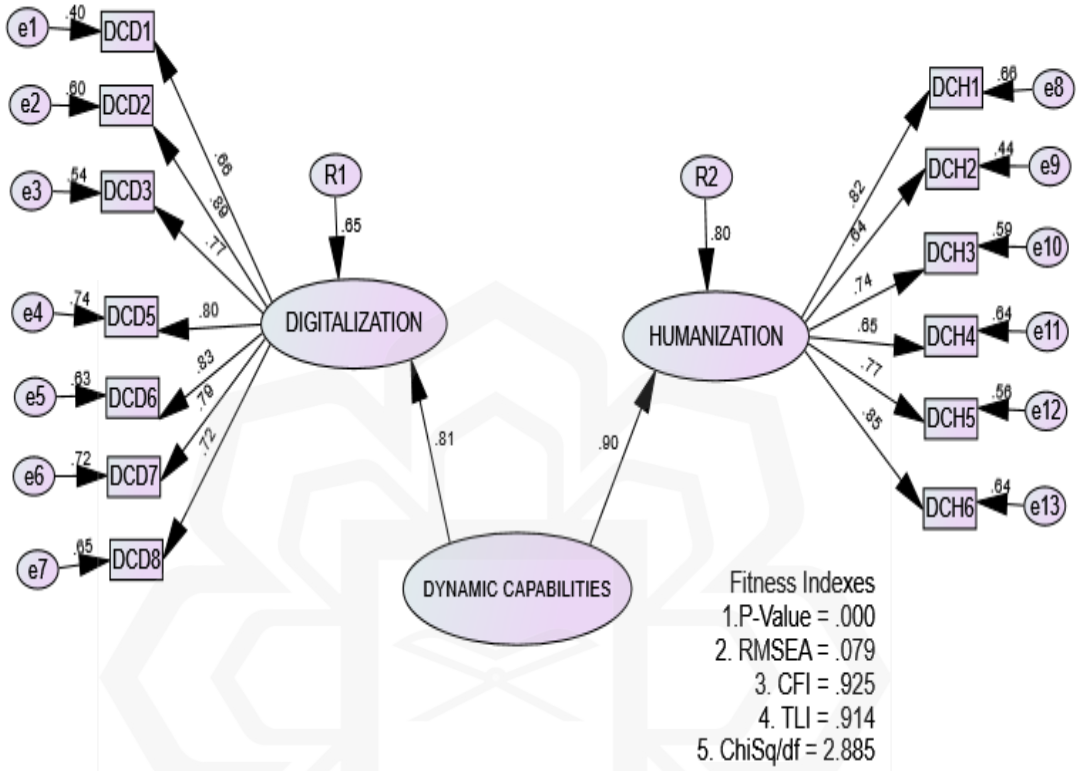


Figure 0.3 Confirmatory Factor Analysis for Dynamic Capabilities Construct

4.6.1.1 The Assessment for Construct Validity

The fitness indexes in Figure 4.3 achieved the threshold values as stated in Table 4.10. The Absolute Fit category, namely RMSEA, is 0.079 (achieved the threshold of less than 0.08), the Incremental Fit category, namely CFI, is 0.925 (achieved the threshold of greater than 0.90), and the Parsimonious Fit category, namely the ratio of Chisq/df is 2.885 (achieved the threshold of less than 3.0). Thus, the measurement model of the dynamic capabilities construct has reached the requirement for Construct Validity (Mohamad et al., 2018; Awang et al., 2018; Raza & and Afthanorhan et al., (2020).

4.6.1.2 The Assessment for Convergent Validity and Composite Reliability

For the assessment of Convergent Validity, the study needs to determine the Average Variance Extracted (AVE). The construct achieved Convergent Validity if its AVE exceeds the threshold value of 0.5 (Afthanorhan et al., 2017; Mahfouz et al., 2020; and Sarwar et al., 2020). To assess the Composite Reliability, the study has to compute the CR, and its value should exceed the threshold value of 0.6 for this reliability to be achieved (Awang, 2015; Muda et al., 2018; Awang et al., 2018). Hence, The AVE and CR for the main constructs and the respective sub-constructs for Dynamic capabilities are computed and presented in Table 4.12.

Table 0.12 The Average Variance Extracted (AVE) and Composite Reliability (CR) for Dynamic Capabilities Construct.

Construct	**Item**	**Factor Loading**	**CR (above 0.6)**	**AVE (above 0.5)**
Dynamic Capabilities	Digitalisation	.81	.925	.760
	Humanisation	.90	.909	.667
Digitalisation	DCD1	.66	.934	.633
	DCD2	.89		
	DCD3	.77		
	DCD4	.80		
	DCD5	.83		
	DCD6	.79		
	DCD7	.72		
Humanisation	DCH1	.82	.801	.573
	DCH2	.64		
	DCH3	74		
	DCH4	65		
	DCH5	77		
	DCH6	85		

4.6.1.3 The Pooled-CFA for all Measurement Models of Constructs

The pooled construct is presented in Figure 4.4. Here, the measurement model for the second-order construct (Dynamic Capabilities) was validated by applying the CFA process independently and simplifying it into first-order constructs to reduce its complexity (Awang, 2015; Awang et al., 2015, 2018). The reason for running the pooled CFA for all constructs together (after completing CFA for the second-order construct separately) is to assess the Discriminant Validity among constructs in the model (Mohamad et al., 2019 and Afthanorhan et al., 2019). The pooled CFA procedure to assess all latent constructs simultaneously is shown in Figure 4.4.

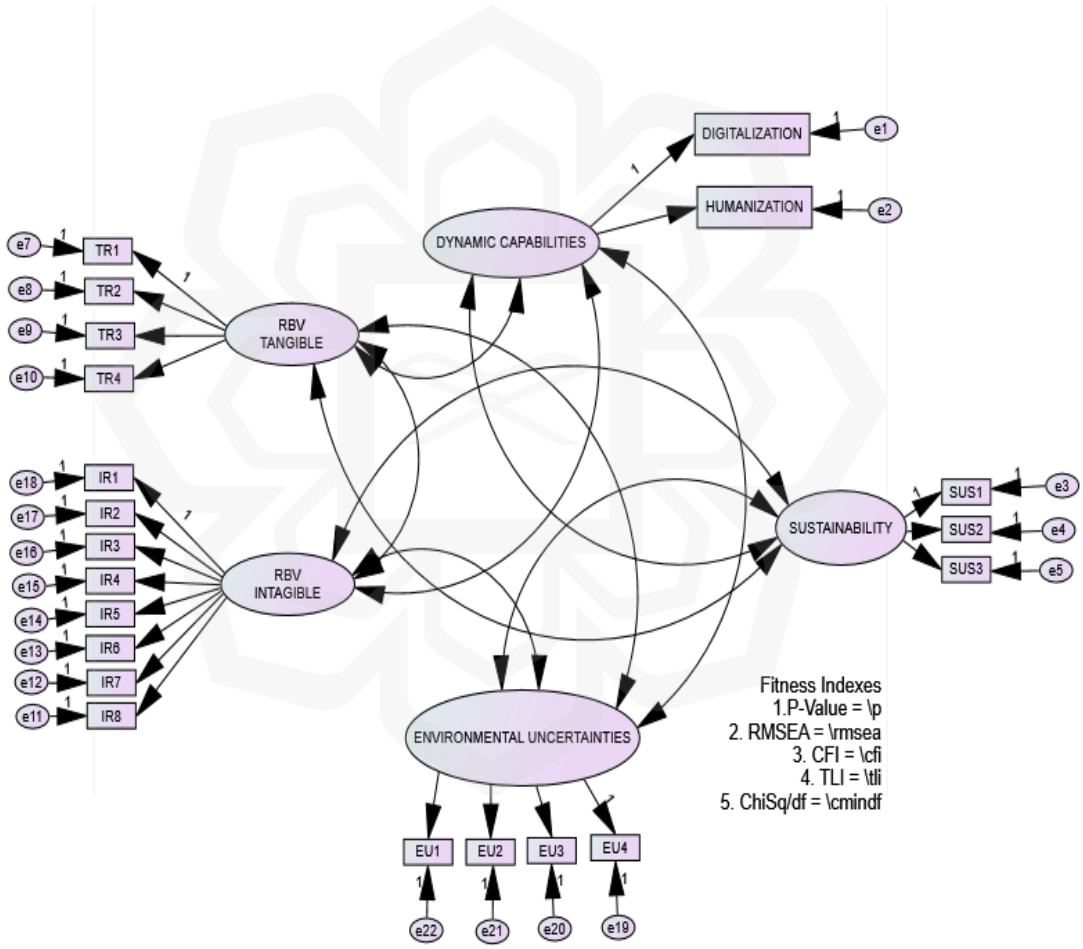


Figure 0.4 The Pooled Measurement Model For Estimating The Correlation Between Constructs

The results of the Pooled-CFA procedure for the model in Figure 4.5 are shown in Figure 4.6. The output presented the fitness indexes for all constructs in the model, the factor loading for every sub-construct or component measures the main construct, and the correlation between constructs in the model. The fitness indexes should meet threshold values as shown in Table 4.26; the factor loading for every item should be a minimum of 0.6, and the correlation coefficient for any two constructs should not exceed 0.85 (Aziz et al., 2016; Yusof et., 2017, Awang et al., 2018). The problem of multi-collinearity happens if the correlation between any two constructs exceeds 0.85. Regarding the correlation values (at the double-headed arrow), none of the values were found to be greater than 0.85. Thus, no evidence shows that there is a multi-collinearity problem.

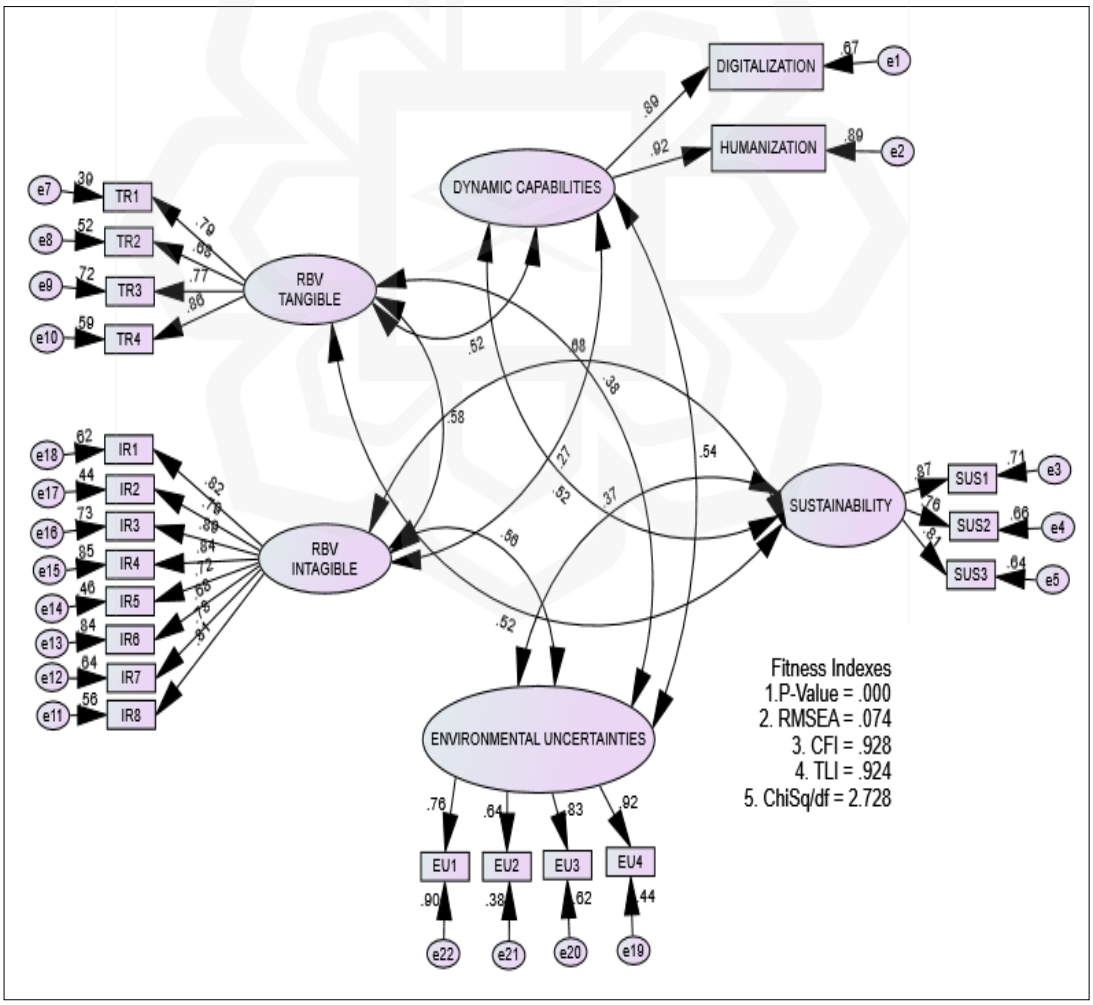


Figure 0.5 The CFA results for the pooled measurement model of all constructs

4.6.1.4 The Assessment for Construct Validity

The Fitness Indexes in Figure 4.5 have met the threshold values as stated in Table 4.10. The Absolute Fit category, namely RMSEA, is 0.074 (achieved the threshold of less than 0.08), the Incremental Fit category, namely CFI, is 0.928 (achieved the threshold of greater than 0.90), and the Parsimonious Fit category, namely the ratio of Chisq/df is 2.728 (achieved the threshold of less than 3.0). Hence, the measurement model of all latent constructs in Figure 4.5 has achieved the requirement for Construct Validity (Mohamad et al., 2018; Raza & Awang, 2020).

4.6.1.5 The Assessment for Convergent Validity and Composite Reliability

To assess the Convergent Validity, the study should compute the Average Variance Extracted (AVE). The construct achieved Convergent Validity if its AVE exceeds the threshold value of 0.5 (Afthanorhan et al., 2019; Awang et al., 2018; Muda et al., 2018). For assessing the Composite Reliability, the study has to compute the CR, and its value should go above the threshold value of 0.6 for this reliability to be achieved (Afthanorhan et al., 2019; Awang et al., 2018; Muda et al., 2018). The AVE and CR for all constructs are presented and computed in Table 4.13.

Table 0.23 The Average Variance Extracted (AVE) and Composite Reliability (CR) for all constructs in the model.

Construct	**Item**	**Factor Loading**	**CR (above 0.6)**	**AVE (above 0.5)**
Tangible Resources	TR1	0.79	**0.886**	**0.724**
	TR2	0.68		
	TR3	0.77		
	TR4	0.86		
Intangible Resources	IR1	0.82		
	IR2	0.79		
	IR3	0.89		
	IR4	0.84		
	IR5	0.72		
	IR6	0.68		

	IR7	0.78		
	IR8	0.81		
Dynamic Capabilities	Digitalisation	0.67	**0.735**	**0.852**
	Humanisation	0.89		
Environmental Uncertainties	EU1	0.76	**0.874**	**0.762**
	EU2	0.64		
	EU3	0.83		
	EU4	0.92		
Sustainability	SUS1	0.87	**0.824**	**0.648**
	SUS2	0.76		
	SUS3	0.81		

Regarding the Average Variance Extracted (AVE) and Composite Reliability (CR) values in Table 4.4, the study found all AVE and CR exceed their threshold values of 0.5 and 0.6, respectively (Mohamad et al., 2019; and Sarwar et al., 2020). Hence, the study concludes that the Convergent Validity and Composite Reliability for all latent constructs in the model are achieved.

4.6.1.6 The Assessment of Discriminant Validity among Constructs

The discriminant validity should be examined for the validity of the model in this study.

The discriminant validity assessment is to make sure that no redundant constructs are present in the model. A redundant construct is present when any pair of constructs are highly correlated in the model. To assess the discriminant validity, one is required to develop the discriminant validity index summary, as shown in Table 4.12. The diagonal values in bold are the square root of the AVE of the respective constructs, while other values are the correlation coefficient between the pair of the respective constructs.

Table 0.34 The Discriminant Validity Index Summary for all Constructs

Construct	Tangible Resources	Intangible Resources	Dynamic Capabilities	Environmental Uncertainties	Sustainability
Tangible Resources	0.83				
Intangible Resources	0.56	0.72			
Dynamic Capabilities	0.72	0.54	0.76		
Environmental Uncertainties	0.38	0.28	0.38	0.81	
Sustainability	0.56	0.54	0.56	0.64	0.82

As illustrated in Table 4.14, the discriminant validity of the respective construct is achieved if the square root of its AVE exceeds its correlation value with other constructs in the model (Awang, 2014, 2015; Awang et al., 2015; Awang et al., 2018). In other words, the Discriminant Validity is achieved if the diagonal values (in bold) are higher than any other values in the rows and columns. The presented values in Table 4.14 meet the threshold of discriminant validity. Hence, the study concludes that the discriminant validity for all constructs is achieved.

4.6.1.7 The Assessment of Normality for all constructs

Finally, the study has to evaluate the normality distribution of all items measuring the construct before applying the structural model and SEM. Because SEM uses the parametric statistical approach of modelling, the study needs to evaluate the normality distribution of all items measuring their respective constructs. Awang (2015), Kashif et al. (2015, 2016), Mohamad et al. (2016, 2017, 2018), Yusuf et al. (2017) and Muda et al. (2018) stated that the study only needs to present the values of skewness for all items do not depart from normality. Therefore, the skewness values have to fall within the range of -1.5 to 1.5 is acceptable. The normality distribution assessment for all items is presented in Table 4.15.

Table 0.45 Assessment Of Normality For The Data

Variable	Min	Max	Skew	C.R.	Kurtosis	C.R.
TR1	2.000	10.000	-.809	-6.124	1.048	3.966
TR2	2.000	10.000	-.889	-6.731	1.144	4.332
TR3	3.000	10.000	-.520	-3.935	-0.016	-0.062
TR4	4.000	10.000	-.593	-4.488	-0.065	-0.247
IR1	3.000	10.000	-.514	-3.893	-0.030	-0.112
IR2	1.000	10.000	-.995	-7.538	1.799	6.812
IR3	4.000	10.000	-.429	-3.251	-0.322	-1.219
IR4	3.000	10.000	-.531	-4.021	-0.044	-0.167
IR5	3.000	10.000	-.214	-1.620	-0.522	-1.975
IR6	4.000	10.000	-.433	-3.277	-0.639	-2.421
IR7	3.000	10.000	-.637	-4.826	0.199	0.754
IR8	4.000	10.000	-.359	-2.716	-0.549	-2.077
DCD1	1.000	10.000	-.972	-7.356	1.400	5.298
DCH2	1.000	10.000	-.986	-7.465	1.725	6.531
EU1	1.000	10.000	-.626	-4.742	0.761	2.881
EU2	1.000	10.000	-.923	-6.986	1.529	5.788
EU3	4.000	10.000	-.701	-5.310	0.164	0.622
EU4	4.000	10.000	-.603	-4.564	0.148	0.561
SUS1	1.000	10.000	-.981	-7.425	1.173	4.443
SUS2	1.000	10.000	-.773	-5.854	0.564	2.136
SUS3	1.000	10.000	-.827	-8.537	1.838	6.959
Multivariate					210.337	57.520

The values of skewness for all components in the model fall within the range between -1.5 and 1.5, which means their distribution does not depart from normality (Awang, 2015; Awang et al., 2018; Muda et al., 2018). Thus, the data distribution meets the requirement of normality distribution for employing the parametric statistical analysis. Once the CFA has been completed and the requirement for validity.

As the reliability and normal distribution have been satisfied, the study can proceed into modelling the structural model. The structural model for the study is shown in Figure 4.6.

4.6.1.8 The Structural Model and Structural Equation Modeling (SEM)

When all the values achieve the required threshold for reliability and validity of CFA, the scientist can conclude that the measurement models for all the latent constructs in the model are validated (Awang, 2015; Yusuf et al., 2017; Awang et al., 2018; Muda et al., 2018; Mohamad et al., 2018, 2019; Sarwar et al., 2020; Afthanorhan et al., 2020, 2020a). So, the next step for the scientist is to collect these constructs into the structural model to perform Structural Equation Modeling (SEM). The constructs are supposed to be organised from left to right, the exogenous constructs at the far left, followed by the mediator constructs in the middle, and the endogenous construct at the far right (Awang, 2015; Awang et al., 2018; Muda et al., 2018). So therefore, based on the direction of the hypothesis, the researcher links the exogenous construct to its respective endogenous construct using the single-headed arrow. Lastly, all exogenous constructs are linked using the double-headed arrow, as presented in Figure 4.6.

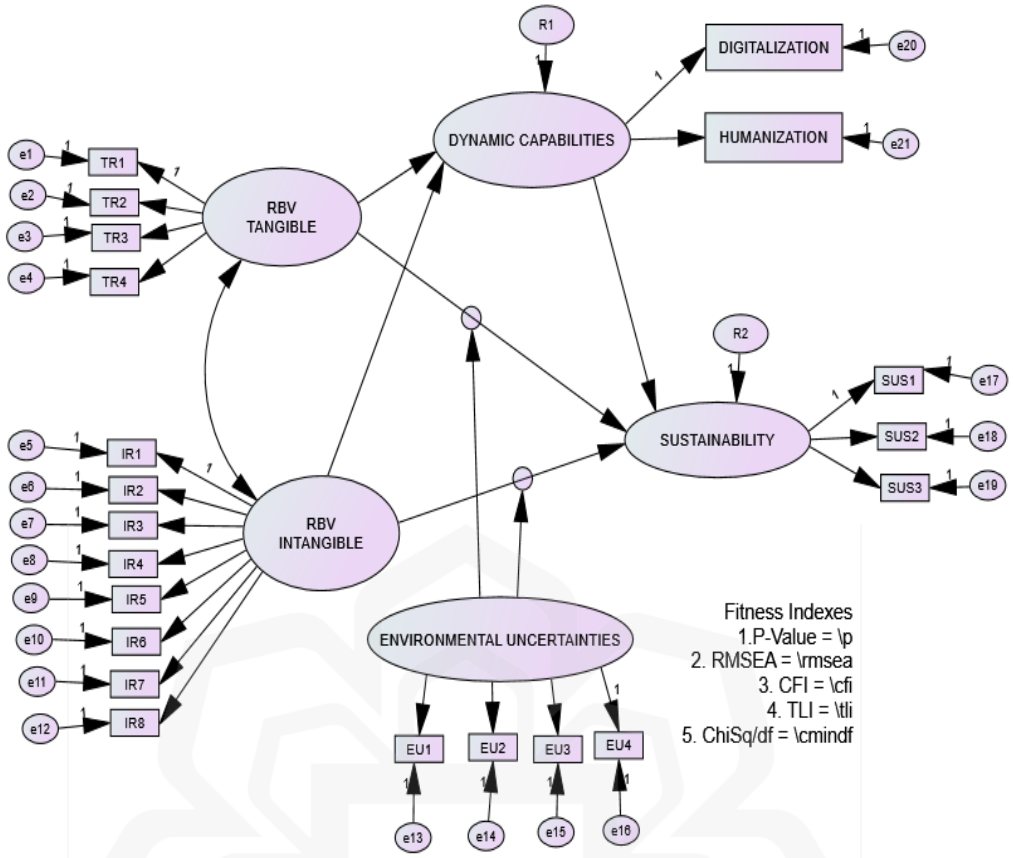


Figure 0.6 The structural model for this study

The single-headed arrow in Figure 4.6 indicates the causal effects of an exogenous construct on the respective endogenous construct being estimated. If the structural model consists of more than one exogenous construct, the double-headed arrow should be employed to estimate the correlational effects between all exogenous constructs. The study needs to assess the strength of the correlation between the exogenous constructs in order to determine the multi-collinearity problem in the model where the two exogenous constructs are highly correlated. The correlation between a pair of exogenous constructs higher than 0.85 indicates that constructs are highly correlated and the multi-collinearity problem exists in the (Rahlin et al., 2020, 2020a; Raza & Awang, 2020, 2020a; Bahkia et al., 2020; Mahfouz et al., 2020; Sarwar et al., 2020; Afthanorhan et al., 2020, 2020a). The output resulting from executing SEM is given in Figure 4.7 for the Standardised Regression path coefficients and in Figure 4.8 for the Regression path coefficients between constructs.

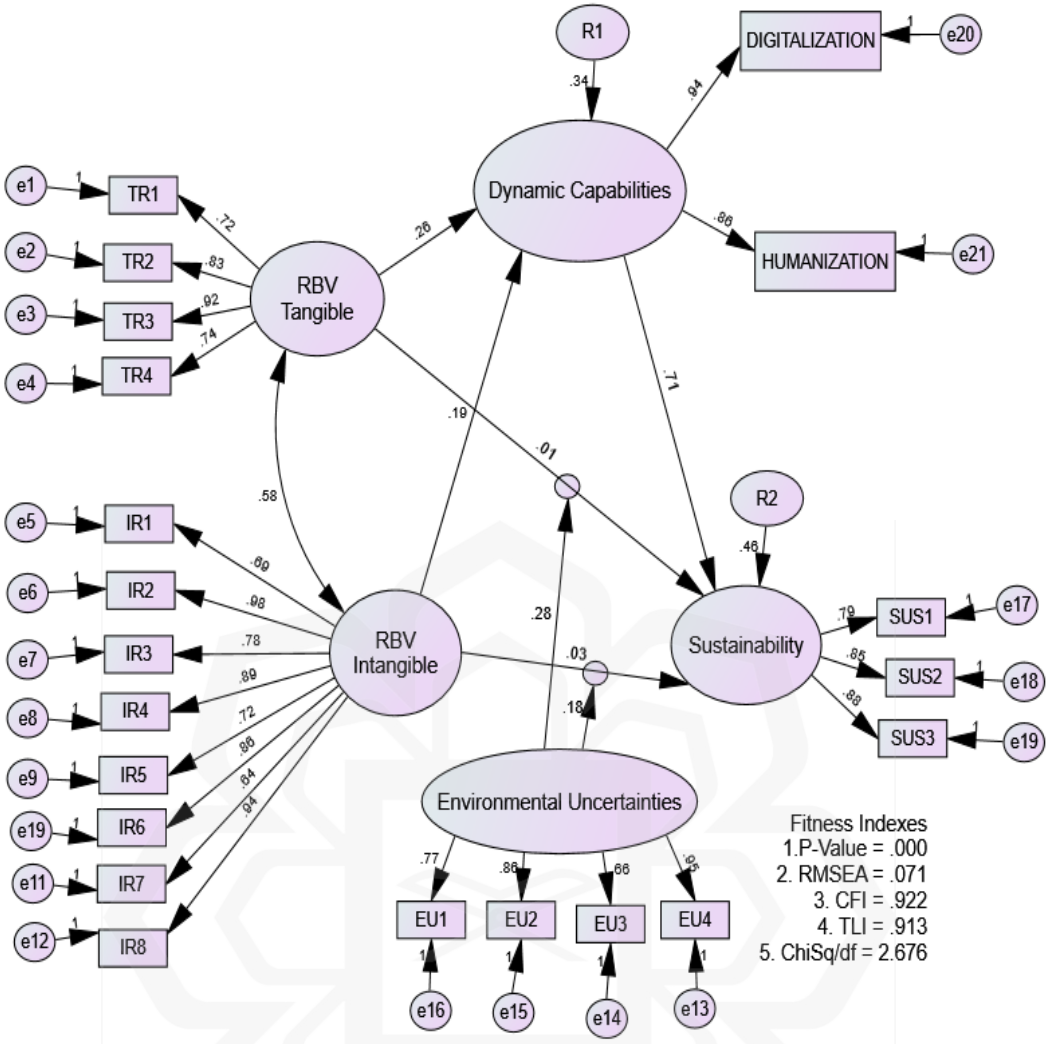


Figure 0.7 The Standardised Regression Path Coefficient Between Constructs

4.7 HYPOTHESES TESTING

After the structural model was determined and assessed for validity, the subsequent stage of the examination was to lead the hypotheses testing through structural equation modelling utilising AMOS. The structural equation modelling aimed to check the hypotheses of the examination. Figure 4.8 indicates the regression path coefficients among the constructs, which demonstrates how much impact every exogenous construct had on the respective endogenous construct. The regression path coefficient model likewise could check the importance of the constructs so as to support the hypotheses of the investigation. A detailed discussion of each hypothesis in this investigation will be presented for the accompanying sub-themes.

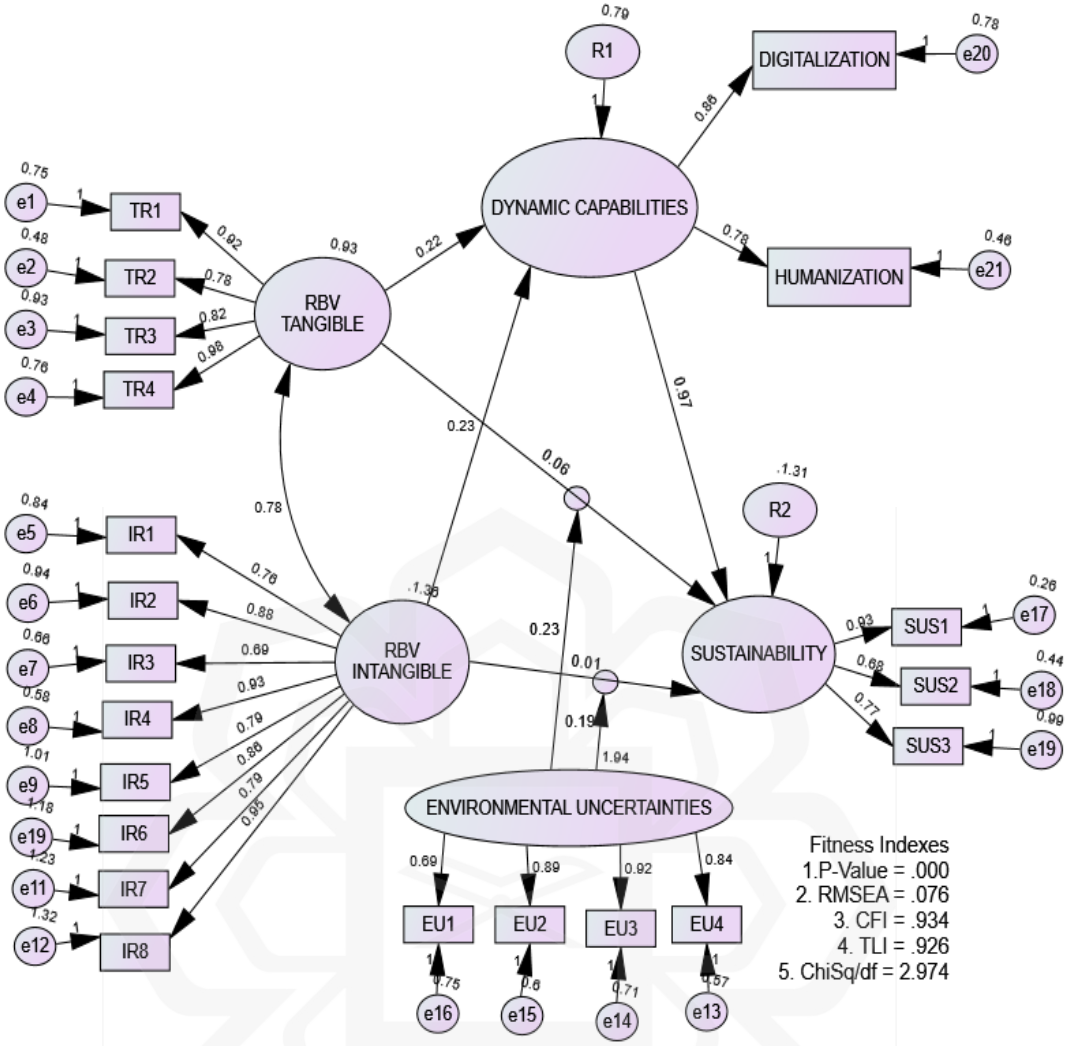


Figure 0.8 The regression path coefficient between constructs

The hypothesis testing was dependent on the probability value (p-value). The hypothesis is significant if the P-value obtained is below 0.05 (Afthanorhan et al., 2019, 2018; Asnawi et al., 2019; Aziz et al., 2016, 2017; Kashif et al., 2015, 2016; Yusof et al., 2017).

4.7.1 Hypothesis 1: Tangible resources have a positive impact towards sustainability

The first hypothesis (H1) proposes that Tangible resources have a positive impact on sustainability. As Predicted, Tangible resources were found to have an impact on sustainability (βeta Estimate = 0.202, P-Value = 0.001). In other words, when tangible

resources increase by 1, sustainability will increase by 0.202. Accordingly, the HQ is supported, as presented in Table 4.16.

Table 0.56 Result of Hypotheses 1

Hypothesis	Construct	Path	Construct	Beta Estimate	S. E	C.R	P-Value	Result
H1	Sustainability	←	Tangible Resources	0.202	0.057	2.145	0.001	Sig.

4.7.2 Hypothesis 2: Intangible resources have a positive impact towards sustainability

The second hypothesis (H2) proposes that Intangible resources have a positive impact on sustainability. As predicted, intangible resources were found to have an impact on sustainability (βeta Estimate = 0.224, P-Value = 0.0023). In other words, when intangible resources increase by 1, sustainability increases by 0.224. Accordingly, the above research hypothesis is supported, as shown in Table 4.17.

Table 0.67 Result of Hypotheses 2

Hypotheses	Construct	Path	Construct	Beta Estimate	S. E	C.R	P-Value	Result
H2	Sustainability	←	Intangible resources	0.224	0.68	3.566	0.023	Sig.

4.7.3 Hypothesis 3: Dynamic capabilities have a positive impact towards sustainability

The third hypothesis (H3) proposed that digitalisation has a significant influence towards sustainability. As predicted, digitalisation was found to have an impact on sustainability (βeta Estimate = 0.264, P-Value = 0.042). In other words, when digitalisation increases by 1, sustainability also increases by 0.264. Accordingly, the above research hypothesis is supported, as shown in Table 4.18.

Table 0.78 Result of Hypotheses 3

Hypotheses	Construct	Path	Construct	Beta Estimate	S. E	C.R	P-Value	Result
H3	Sustainability	←	Digitalisation	0.264	0.68	3.566	0.042	Sig.

4.8 ANALYSING THE MEDIATING EFFECTS OF LATENT CONSTRUCTS

This research is interested in testing whether the construct dynamic capabilities (DC) play a mediating role in the relationship between tangible and intangible resources and sustainability. The standardised regression weight and the probability values were obtained, which implies the significance for the respective path, as shown in Figure 4.8. Hence, the mediation triangles are presented in Figures 4.10 and 4.11.

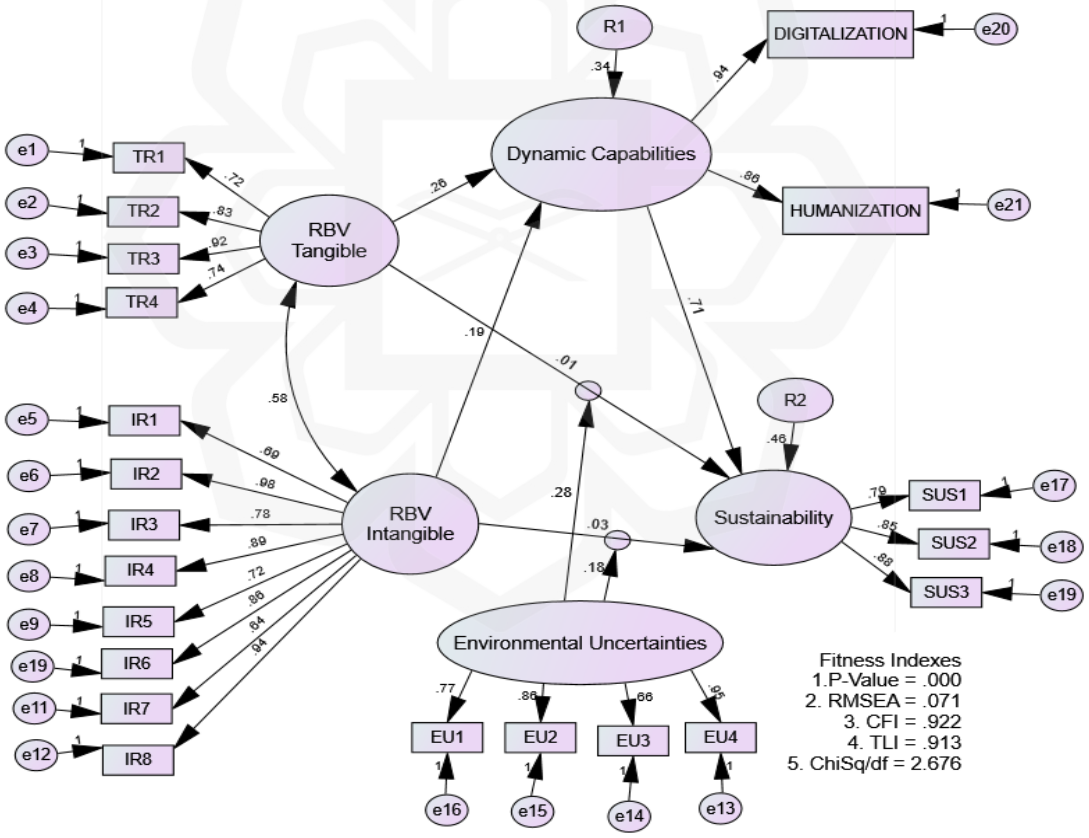


Figure 0.9 The Standardised Regression for Every Path in the Model

4.8.1 Testing The Mediating Effect of DC in the Relationship between Tangible Resources and Sustainability

	The Hypothesis for Testing Mediator
H4	DC mediates the relationship between Tangible Resources and Sustainability

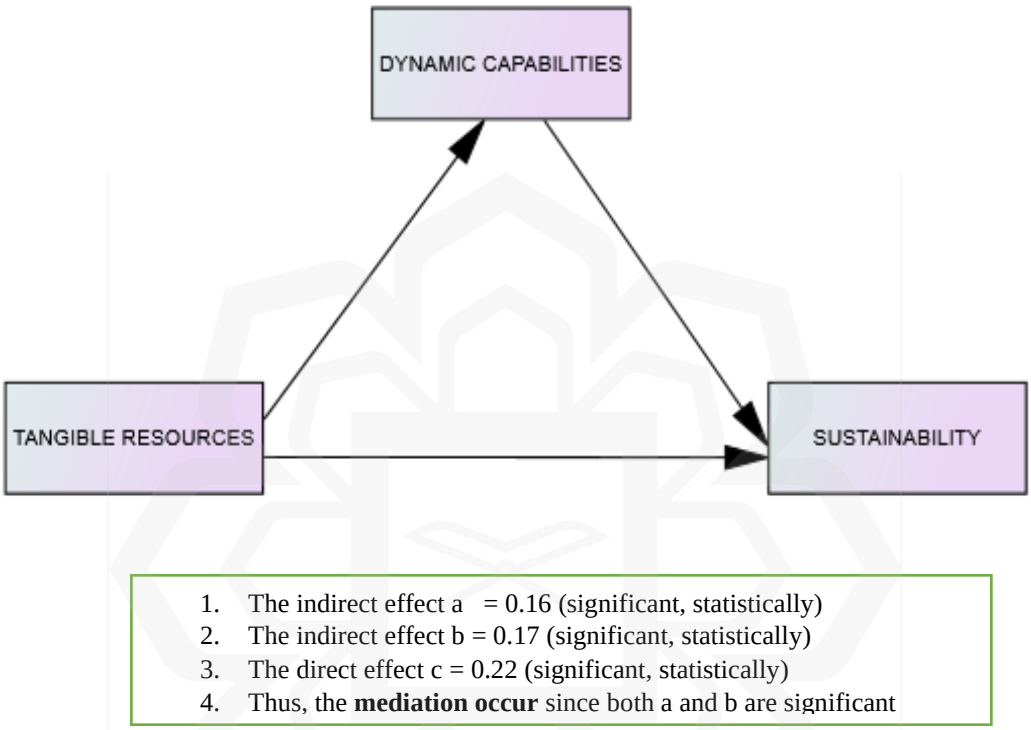


Figure 0.10 The Mediation Testing Procedure for Tangible Resources

The fourth hypothesis (H4) of this study is related to mediation. It states that dynamic capabilities (DC) mediate the relationship between tangible resources and sustainability. Figure 4.10 indicates that DC mediates the relationship between tangible resources and sustainability. Since the indirect effects (a= 0.16, b= 0.17) are both statistically significant and the direct effect (i.e. 0.22) is statistically significant, mediation has occurred, and the type of mediation is partial mediation since the direct effect is also statistically significant. Table 4.19 shows the mediation result from bootstrapping.

Table 0.89 Mediation Result from Bootstrapping

	Indirect Effect (ab)	**Direct (c)**
Bootstrapping Value	**0.0322**	**0.042**
Probability Value	**0.012**	**0.004**
Results on Mediation	Significant	Significant
	Mediation exists since indirect effects are significant.	
Type of Mediation	**Partial Mediation** since the direct effect is also significant.	

The researcher used the Maximum Likelihood Estimator (MLE) bootstrapping with 1000 bootstrap samples, ninety-five per cent (95%) bootstrap confidence interval, as well as ninety-five per cent (95%) bias-corrected confidence interval for testing DC as a mediator in the connection between tangible resources as shown in Table 4.18. The results of mediation testing using the bootstrapping procedure are equivalent to the results of the mediation test using the normal procedure, as presented in Figure 4.10.

4.8.2 Testing The Mediating Effect of DC in the Relationship between Intangible Resources and Sustainability

	The Hypothesis for testing Mediator
H5	DC mediates the relationship between Intangible Resources and Sustainability

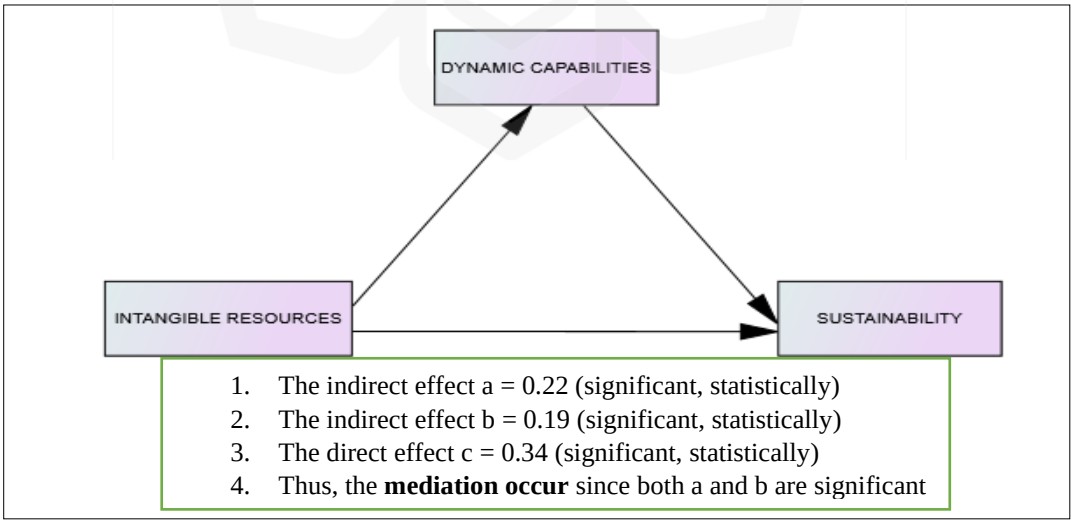


Figure 0.11 The Mediation Testing Procedure for Intangible Resources

Hypothesis (H5) is related to mediation; specifically, dynamic capabilities (DC) mediate the relationship between intangible resources and sustainability. Figure 4.11 illustrates that DC mediates the relationship between intangible resources and sustainability. The study both indirect effects (a= 0.22, b= 0.19) and direct effects (i.e. 0.34). The indirect effects indicate that mediation has occurred, but only partial mediation since the direct effect is also statistically significant. Table 4.20 presents the mediation result from bootstrapping;

Table 0.20 Mediation Result from Bootstrapping

	Indirect Effect (ab)	**Direct (c)**
Bootstrapping Value	**0.041**	**0.056**
Probability Value	**0.004**	**0.002**
Results on Mediation	Significant	Significant
	Mediation exists since indirect effects are significant.	
Type of Mediation	**Partial Mediation** since the direct effect is also significant.	

The researcher used the Maximum Likelihood Estimator (MLE) bootstrapping with 1000 bootstrap samples, ninety-five per cent (95%) bootstrap confidence interval, as well as ninety-five per cent (95%) bias-corrected confidence interval for testing DC as a mediator in the connection between intangible resources as presented in Table 4.19. Hence, the results of mediation testing using a bootstrapping procedure are equivalent to the results of mediation testing using the normal procedure, as presented in Figure 4.11.

4.9 ANALYSING THE MODERATING EFFECTS OF OBSERVED VARIABLES

The researcher is also interested in testing whether the construct environmental capabilities (EU) is moderating the relationship between tangible and intangible resources and sustainability. The standardised regression weight and the probability values were obtained, which implies the significance for the respective path, as shown

in Figure 4.12. Moreover, the representation of the moderation variable is illustrated in Figures 4.13 and 4.14.

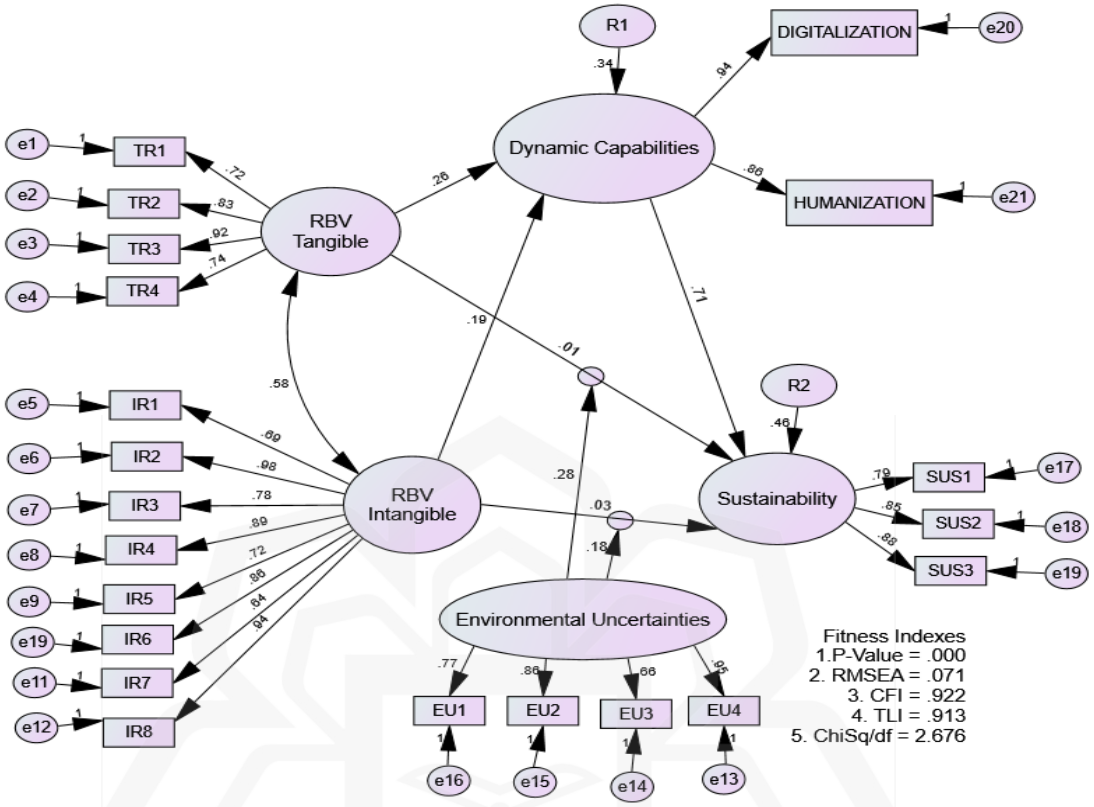


Figure 0.12 Standardised Regression for Every Path in the Model

4.9.1 Testing the Moderating Effect of Environmental Uncertainties (EU) in the Relationship between Tangible Resources and Sustainability

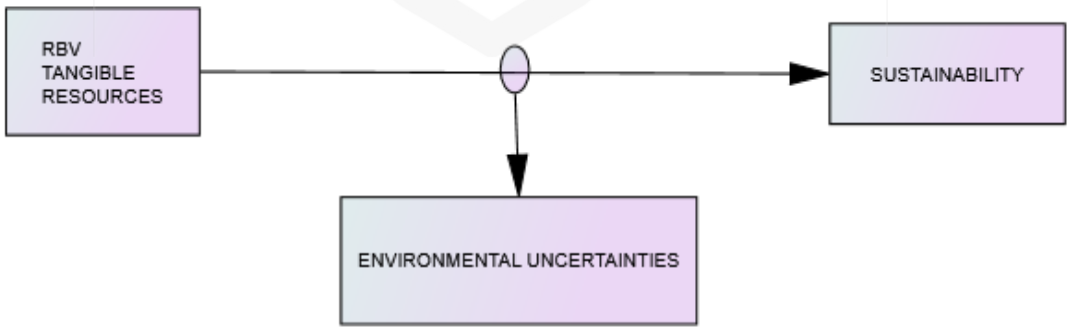


Figure 0.13 Moderation testing procedure for tangible resources

Hypotheses testing is required in analysing the moderator in Figure 4.13. In this regard, it tests hypothesis 6, which states that the EU moderates the relationship between tangible resources and sustainability.

Table 0.21 Moderating Effect of Environmental Uncertainties on Sustainability

			Estimate	S. E	C.R	P-Value	Result
Sustainability	←	Tangible resources	-0.88	0.182	-4.622	**0.002**	**Significant**

The hypothesis indicating the moderating effect of the EU on the relationship between tangible resources and sustainability is supported. Since the hypothesis of the main effect is also significant after introducing the moderator into the model, it indicates the occurrence of partial moderation.

4.9.2 Testing the Moderating Effect of Environmental Uncertainties (EU) in the Relationship between Intangible Resources and Sustainability

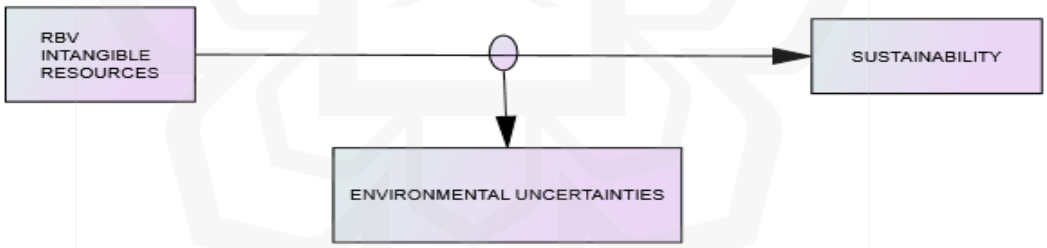


Figure 0.14 The Moderation Testing Procedure for Intangible Resources

The hypotheses testing is required in analysing a moderator in Figure 4.14. It focuses on hypothesis 7, which states that the EU moderates the relationship between intangible resources and sustainability

Table 0.22 The Moderating Effect of Environmental Uncertainties on Sustainability

			Estimate	S. E	C.R	P-Value	Result
Sustainability	←	Intangible resources	-0.68	0.174	-4.642	0.012	**Significant**

The hypothesis indicating the moderating effect of the EU on the relationship between intangible resources and sustainability is supported. The type of moderation that occurs is partial moderation since the hypothesis of the main effect is also significant after introducing the moderator into the model.

4.10 DISCUSSIONS BASED ON RESEARCH OBJECTIVES

The main objective of this study is to develop a model of firms' sustainability in the context of Malaysian SMEs. Thus, the first objective of this study is to examine the effect of resource capabilities (Tangible and Intangible) on Malaysian SMEs' sustainability. In examining the first objective, hypotheses (H1 and H2) were tested. Hence, the hypotheses will be discussed in the proceeding section.

4.10.1 Hypothesis 1: Tangible Resources have a Significant Effect on Malaysian SMES' Sustainability.

Hypothesis 1 was tested to fulfil the first research objective. The hypothesis states that tangible resources have a significant effect on SMEs' sustainability, which has been examined using SEM-AMOS. The empirical result revealed that the proposed relationship between tangible resources and SME sustainability was significant at (β=0.202, p=0.001). Thus, H1 is supported, as shown in This finding is aligned with previous investigations (Gaya, 2017; Musara & Razafiarivony, 2024; Surajit, 2023). Thus, the hypothesis that resources such as tangible resources (financial resources, physical resources, organisational resources, and technological resources) are capable of enhancing SMEs' competitive advantage and sustainability is accepted. Accordingly, the findings of the current study are consistent with the resource-based view, which emphasises that performance results and competitive advantage are from the firm-specific resources and capabilities which are difficult to use by other firms. The theory insists that a firm's strategic resources often represent a composite network of interrelated assets and capabilities, which is a measure of ensuring a high level of sustainable competitive advantage (Lowson, 2003). Accordingly, the researcher interviewed some relevant subject matter experts in order to support these findings. The interview's result emphasised enhancing the financial support systems for SMEs by reducing the lending criteria requirements to increase access to credits.

> Assess to finance means developing accessible, tailored financing programmes for SMEs, But still, they cannot access it. Why? Because they haven't reached certain guidelines or certain criteria.
>
> (INN2)

Moreover, the subject matter experts recommended establishing government-backed programs for SMEs to have efficient marketing strategies and distribution channels that assist them in expanding their market and developing initiatives to ensure a stable supply of raw materials. Moreover, the experts insist on the importance of valuing tangible resources.

> If there are dynamic capabilities in place of which the digital assets are part of it, then it is much easier for the resources to be translated sustainably.
>
> (INN 3)

> Definitely, you can link between the resources, or you can access the resources better.
>
> (INN1)

> Tangible resources play a very crucial role in influencing the sustainability of Malaysian SMEs.
>
> (INN2)

4.10.2 Hypothesis 2 Intangible Resources have a Significant Effect On Malaysian SMEs Sustainability.

Hypothesis (H2) was tested using SEM-AMOS. The empirical findings indicate that the proposed relationship between intangible resources and SME sustainability is supported at β=0.244, P=0.023. This result indicates the significant effect of intangible resources on SMEs' sustainability. Hence, acquiring unique intangible resources such as human resources, innovation resources, and reputation resources will help SMEs towards ensuring sustainable competitive advantage.

This finding conforms with previous studies (Helena & Anna, 2020; Madu et al., 2023; Sam et al., 2022). This outcome is in line with the resource-based view, which suggests that the firm's ability to acquire some of the intangible resources (human resources, innovation resources, and reputation resources) enhances its unique standard and ensures an increase in sustainable competitive advantage. The theory maintains that a firm’s performance depends on its unique resources, and imitating resources reduces the level of competitive advantage (Madhani, 2010). In addition,

the researcher conducted interviews with some subject matter experts to add value to this result.

Moreover, the interviews suggest that increasing support and more access to financial support systems for SMEs by reducing the lending criteria requirements will enhance credit opportunities. Likewise, the experts recommended establishing government-backed programs for SMEs to have efficient marketing strategies and distribution channels that assist them in expanding their market and developing initiatives to ensure a stable supply of raw materials. They also highlighted the importance of intangible resources in ensuring a sustainable competitive advantage.

> It's equally important. Because when you have a business, especially SMEs, even multinational, even big companies, you need to have a solid, rounded company.
>
> If you're talking about reputation, you can see how the people boycott all the big companies now.
>
> (INN5)

4.10.3 Hypothesis 3: Dynamic Capabilities have a Significant Positive Relationship with SMEs' Sustainability.

The second objective of this study is to examine the effect of dynamic capabilities (Digitalisation and Humanisation) on Malaysian SMEs' sustainability. In examining the second objective, hypothesis (H3) was tested using SEM-AMOS. Empirical findings indicate that the proposed relationship between dynamic capabilities and SME sustainability is supported (β=0.264, P=0.042). The study's result also revealed a significant relationship between dynamic capabilities and SME sustainability. The researcher attributes dynamic capabilities as a focal point which needs to be emphasised to ensure organisational competitive advantage. This study posits that dynamic capabilities help SMEs in adapting, integrating, and configuring their resources in response to several market-changing opportunities and other conditions.

This finding agrees with Ilkunur et al. (2024), Ahmed et al. (2023), and Magoti et al. (2023), which emphasise the need for firms to be well-equipped in terms of dynamic capabilities since a firm’s dynamic capabilities are capable in ensuring sustainable competitive advantage and overall achievement of set objectives of a specified firm. The study highlights that adapting to the regular market changes by a firm often enhances its productivity. This is in line with RBV, which suggests that

capabilities are unique resources which can be deployed in a firm and are difficult to be imitated or substituted for, and they have value as well as are rare in nature and capable of ensuring sustainable competitive advantage.

In addition, these findings can be supported with some useful input from the interviews conducted to support the result of the quantitative analysis. The experts emphasised the importance of humanisation and digitalisation in SME sustainability. They addressed the crucial role of digitalisation in modern business operations and highlighted its benefits across all sizes and types of enterprises, as well as how digital marketing and e-commerce platforms can expand the reach of SMEs and provide cost-effective advertising options and how digitalisation enhances customer engagement and loyalty through convenient and direct communication channels. They also mentioned the immediate advantages of digitalisation for SMEs, such as efficiency gains, reduced operational costs, and data-driven decision-making and how digitalisation in various aspects of business operations can support SME sustainability.

> Integrating digital technology in production can contribute to sustainability by enhancing operational efficiency, reducing production costs, and improving overall production.
>
> (INN2)

> Digitising would be the way to go. But in the first place, they need to be trained. They need to know how to do it.
>
> (INN3)

> Because digitalisation is an incentive, right? Support from government, training, free training or maybe cheaper fees for training for SMEs.
>
> (INN4)

> Digitalisation needs money, so most SME thinks that when they do digitalisation, they will need to spend a lot, so you need to have somebody to help them start with digitalisation.
>
> (INN5)

Furthermore, the experts encourage the adoption of digitalisation initiatives to improve business sustainability and responsiveness to changes.

> Digitalisation has become a key component for any businesses, whether it's small, medium, large, even micro, even home-based, even solo entrepreneurs.
>
> (INN1)

> If there are dynamic capabilities in place of which the digital assets are part of it, then it is much easier for the resources to be translated sustainably.
>
> (INN3)

Similarly, the experts mentioned the importance of human elements in business operations, including workplace culture, employee engagement, and support systems. They also discussed the role of humanisation aspects like support systems, skills development, and team activities in business growth for short and long terms. They recommended integrating human elements like support systems, organisational learning, and leadership into business operations. They emphasised the necessity of training, awareness, managing changes, and changing the mindset so that managers and owners stay updated with current practices and knowledge.

> We need to uh to train them, we need to train the managers, the owners we need to change the mindset.
>
> (INN5)

> "Humanisation is a crucial thing for enhanced business. A good support system, including a positive workplace culture and effective communication channels, fosters a motivated and engaging workforce.
>
> (INN2)

> Even though digitalisation is in the organisation of businesses, the customer still needs the human touch because we have a lot of tools that we integrate into our system. When a customer asks or clicks a button, it's a robot will answer. And this, a lot of experiments we tried, this cannot block the project..
>
> (INN4)

4.10.4 Dynamic Capabilities Mediate the Relationship Between Resource Capabilities (Tangible And Intangible) and SME Sustainability

The third objective of this study is to examine the mediating effect of dynamic capabilities in the relationship between resource capabilities (tangible and intangible) and SMEs' sustainability. In examining the third objective, Hypotheses 4 and 5 were tested using SEM-AMOS. Hence, the hypotheses will be discussed in the following section;

4.10.4.1 Hypothesis 4: Dynamic capabilities mediate the relationship between tangible resources and SMEs sustainability.

The empirical result of the SEM-AMOS revealed that the proposed relationship is supported, indicating a significant relationship between the two variables. Since the indirect effects (a= 0.22, b= 0.19) are both statistically significant, and the direct effect (i.e. 0.34) is statistically significant. The bootstrapping analysis confirmed a strong partial mediating role of dynamic capabilities on tangible resources and sustainability. This result could be attributed to the significant role of dynamic capabilities, as it can enhance firms' sustainable competitive advantage and overall success.

Ensuring effective use of a firm's dynamic capabilities, such as digitalisation and humanisation, will enhance sustainable competitive advantage and overall firm productivity. The mediating role of dynamic capabilities (digitalisation and humanisation), as perceived by Malaysian SMEs, implies that when a firm ensures effective utilization of digitalisation and humanisation towards the tangible resources of a firm such as financial resources, physical resources, organisational resources, and technological resources in its operations, tend to enhance the firm's sustained competitive advantage by ensuring its overall success.

The current findings also validate the views of Emmanuel et al. (2021), Sultan & Tawfeeq (2023), and Acosta-Prado & Tafur-Mendoza (2024), who maintained that dynamic capabilities can ensure sustainable competitive advantage of firms. The studies posit that the dynamic capabilities of a firm enable it to accurately and quickly adapt to various shifts in the marketplace or some technological changes. Thus, the current study attributes dynamic capabilities such as digitalisation and humanisation as routine processes which enable firms to transform themselves by evolving with current situations or time in relation to the marketplace. These dynamic capabilities often maintain a strong position towards achieving a sustainable competitive advantage. This submission conforms with the RBV, which insists that firms' capabilities stand as its unique resources capable of increasing their level of productivity, sustained competitive advantage, and overall attainment of firm-set objectives. Thus, the current study posits that dynamic capabilities (digitalisation and humanisation) can be seen as a mechanism for describing the link between tangible resources and Malaysian SMEs' sustainability.

Additionally, the outcome of the qualitative interview insists that to maintain Malaysian SMEs' competitiveness and sustainability, they should consider combining

digitalisation and humanisation aspects to strengthen the relationship between resources and sustainability.

> Digitalisation and humanisation as two concepts that would be helping to strengthen the relationship between the normal resources, like tangible and intangible, towards adapting the environmental changes.
>
> (INN3)

SMEs also should continue learning new technologies. The experts suggested focusing on leadership development programs emphasising adaptability, innovation, and a supportive work environment.

> To make this possible, you need a strong leader.
>
> (INN3)

> A lot of resources. Leadership. I think they can grow.
>
> (INN4)

They also recommended fostering a culture of continuous learning and knowledge sharing through regular training programs. The participants suggested to balance between digital and physical business practices and their importance. Again, they suggested promoting mindset shifts by showcasing the benefits of adopting new technologies and practices, possibly through success stories and case studies.

> Keep your knowledge updated. It's very important to keep your keep your knowledge updated. Then you upgrade your business based on the knowledge that you have you need to you need to upgrade it every uh uh every now and then you need to upgrade it in order for you to stay because there's a lot more uh new companies that come out with new ideas with new technology .
>
> (INN5)

4.10.4.2 Hypothesis 5: Dynamic capabilities mediate the relationship between intangible resources and SMEs sustainability.

The empirical result of the SEM-AMOS revealed that the proposed relationship is supported by a significant relationship achieved. Since the indirect effects (a= 0.22, b= 0.19) are both statistically significant, and the direct effect (i.e. 0.34) is also

statistically significant. The bootstrapping analysis confirmed a strong partial mediating role of dynamic capabilities on intangible resources and sustainability. The current finding could be attributed to the significant role of dynamic capabilities, as it can enhance firms' sustainable competitive advantage and overall success. Hence, ensuring effective utilization of a firm's dynamic capabilities, such as digitalisation and humanisation toward the intangible resources of a firm, often enhances sustainable competitive advantage. The mediating role of dynamic capabilities (digitalisation and humanisation), as perceived by Malaysian SMEs, implies that when a firm ensures effective utilization of digitalisation and Humanisation in dealing with intangible resources such as human resources, innovation resources, and reputation resources tends to increase the level of productivity and ensures a sustained competitive advantage of a firm.

Besides, these findings also agree with the views of Hoang et al. (2020), Mohanad & Hayder (2019), and Acosta-Prado & Tafur-Mendoza, (2024), who emphasised the need for firms to be well-equipped in terms of dynamic capabilities as its capable of enhancing sustainable competitive advantage. The current study attributes dynamic capabilities (digitalisation and Humanisation)as firms' ability to withstand the current market situations since it helps utilise the firms' intangible resources (human resources, innovation resources, and reputation resources) towards ensuring a sustainable competitive advantage and achievement of organisational goals. This assumption agrees with the RBV, which emphasises firms' capability to utilise their inimitable resources to sustain market changes and adequate competitive advantage. Hence, this study maintained that dynamic capabilities (digitalisation and humanisation) can stand as a mechanism for describing the relationship between intangible resources and SMEs' sustainability in Malaysia.

In addition, the input from the experts interview conducted by the researcher showed that to ensure the competitiveness and sustainability of Malaysian SMEs, the SMEs have to consider combining digitalisation and humanisation aspects to strengthen the relationship between resources and sustainability. SMEs also should continue learning new technologies. The participants suggested focusing on leadership development programs emphasising adaptability, innovation, and a supportive work environment. They also recommended fostering a culture of continuous learning and knowledge sharing through regular training programs. The participants suggested balancing digital and physical business practices and their importance. Additionally,

they suggested promoting mindset shifts by showcasing the benefits of adopting new technologies and practices, possibly through success stories and case studies.

> Digitalisation and humanisation as two concepts that would be helping to strengthen the relationship between the normal resources, like tangible and intangible, towards adapting the environmental changes.
>
> (INN3)

> Even though digitalisation is in the organisation of businesses, the customer still needs the human touch because we have a lot of tools that we integrate in our system. When a customer asks or clicks a button, it's a robot will answer. And this, a lot of experiments we tried, this cannot block the project..
>
> (INN4)

4.10.5 Environmental uncertainties moderate the relationship between resource capabilities (tangible and intangible) and SME sustainability

The fourth objective of this study is to examine the moderating effect of environmental uncertainties between resource capabilities (tangible and intangible) and SSMEs' sustainability. In examining the fourth objective, HHypotheses6 and 7 were tested using SEM-AMOS. Hence, these hypotheses will be discussed in the proceeding section,

4.10.5.1 Hypothesis 6: Environmental uncertainties moderate the relationship between tangible resources and SMEs' sustainability.

This hypothesis was tested using SEM-AMOS. The indirect effects (β = -0.88, pv = 0.002) are both statistically significant. The current finding could be attributed to business owners' ability to recognise and apply quick responses to emerging environmental changes (technology changes) to ensure increased productivity and sustainable competitive advantage. Thus, the moderating role of environmental uncertainties as perceived by Malaysian SMEs suggests that when managers of Malaysian SMEs maintain adequate responses to various market changes (technology changes) and other related changes, it enhances productivity and increases competitive advantage.

In addition, the current findings are in line with Oanh et al. (2023), Hamdiah et al. (2024) Ali & Rohaida's (2023) findings that high productivity largely depends

on its ability to withstand the market environmental changes. Hence, the ability of managers in Malaysian SMEs to identify and understand the rapid, unexpected changes in their environment enables them to anticipate changes by making them make rational decisions on how to ensure sustainable competitive advantage and success of their businesses. These findings conform with the assumption of RBV, which emphasises that performance and competitive advantages are mainly enhanced by firms' capability to utilise their available resources to gain competitive advantage. Accordingly, the current study maintained that managers' capability to utilise their resources (tangible resources) and apply quick responses to market uncertainties (technological changes) often ensures a high level of firm performance and enhances sustainable competitive advantage.

Furthermore, the result of the interview conducted by the researcher shows that the experts emphasised that environmental uncertainties have an impact on the relationship between resources (tangible resources) and the achievement of sustainability amongst Malaysian SMEs, as they suggested the need for businesses to be adaptable and flexible in response to market changes, have regular assessments for business performance, have speedy responses to environmental changes, and the necessity of unique implementation strategies. The experts stressed the importance of a dynamic resource for SMEs to quickly address environmental uncertainties.

> SMEs have raised concerns about the cost of implementing risk assessment tools. Besides, implementing these two things actually obtains strong capabilities and resources in the SME itself. This approach can enhance sustainability and facilitate a speedy response to environmental changes, both short-term and long-term.
>
> (INN2)

4.10.5.2 Hypothesis 7:Environmental uncertainties moderate the relationship between intangible resources and SMEs' sustainability.

The hypothesis was tested using SEM-AMOS. The result supported the hypothesis with a significant relationship achieved. The indirect effects (β = -0.68, pv = 0.012) are both statistically significant. The outcome of this investigation could be attributed to the ability of managers to be able to recognise and apply quick responses to business environmental changes (technology changes) in order to ensure adequate use of resources (intangible resources) towards ensuring a sustainable competitive

advantage. Hence, the moderating effect of environmental uncertainties as perceived by Malaysian SMEs submits that when managers in Malaysian SMEs ensure adequate response to the uncertain market changes (technology changes) often leads to adequate use of resources (intangible resources) for the purpose of increasing the level of sustainable competitive advantage and overall success of a firm.

The outcome of this study agrees with the previous studies conducted by Oanh et al. (2023), Hamdiah et al. (2024), and Ali & Rohaida (2023), which maintains that managing business environmental uncertainties by managers is capable of ensuring high level of firms' sustainable competitive advantage. This conforms with the RBV submission, which suggests that a company's productivity largely depends on its capability to use its available resources. Hence, this study emphasised that managers' capability to withstand various market uncertainties leads to an increase in sustainable competitive advantage. The theory tends to provide a clear framework for understanding the relationship between resources, capabilities and sustainable competitive advantage among firms. Thus, ensuring competitive advantage and maintaining sustainability largely depends on SMEs' capability to withstand environmental uncertainties.

Additionally, the outcome of the interview conducted by the researcher maintained that environmental uncertainties have an impact on the relationship between resources (intangible resources) and the achievement of sustainability amongst Malaysian SMEs, as they suggested the need for businesses to be adaptable and flexible in response to market changes, have regular assessments for business performance, have speedy responses to environmental changes, and the necessity of unique implementation strategies. The participants stressed the importance of a dynamic resource for SMEs to address environmental uncertainties quickly. As mentioned earlier, SMEs have raised concerns about the cost of implementing risk assessment tools.

> By implementing these two things, it actually obtains strong capabilities and resources in the SME itself. This approach can increase the level of sustainability and facilitate a speedy response to environmental changes, in both short-term and long-term perspective.
>
> (INN2)

4.11 CHAPTER SUMMARY

This chapter presented detailed explanations of the research findings and presented measurable empirical findings. The description started with an overview of the contents of the chapter and the data screening process. Similarly, the sample, demographic characteristics of the respondents and the reliability of the study constructs were discussed in this chapter. This chapter provided a comprehensive explanation of the EFA conducted on the study variables and presented the findings. Accordingly, AMOS was used in assessing the results of the study and testing the hypotheses. The chapter also validated the measurement models' outcome on the direct relationship between the study constructs. Lastly, it explored the mediator and moderator roles of dynamic capabilities in the relationship between tangible and intangible resources and sustainability. Table 4.23 summarises the hypothesis testing.

Table 0.23 Summary of the Hypothesis Testing Results

NO	Hypothesis	Result
H1	Tangible resources has a significant positive effect on sustainability	Supported
H2	Intangible resources has significant positive effect on sustainability	Supported
H3	Dynamic capabilities (digitalisation and Humanisation) has significant positive effect on sustainability	Supported
H4	Dynamic capabilities mediate the relationship between tangible resources and sustainability	Supported
H5	Dynamic capabilities mediate the relationship between tangible resources and sustainability	Supported
H6	Environmental uncertainties moderate the relationship between tangible resources and sustainability	Supported
H7	Environmental uncertainties moderate the relationship between tangible resources and sustainability	Supported

CHAPTER FIVE

CONCLUSION

5.1 INTRODUCTION

This chapter discusses the research framework and the hypothesis testing. The entire summary of the study is also presented in this chapter. The findings are presented based on the interpretation of the result and the research questions. This chapter also discusses the contribution of the study, limitations, and recommendations for future studies and presents the study's conclusion.

5.2 CONTRIBUTION OF THE STUDY

This study's major concern is the sustainability of Malaysian SMEs during market uncertainties. Focus is given on the resource capabilities, which in turn provide crucial information to various stakeholders regarding managing uncertainties in business operations. The study also contributes to the body of literature by merging digitalisation and humanisation issues, posing challenges to their respective approaches. Conforming to those challenges will provide huge potential for future research in similar fields, especially in generalising it to SMEs in Emerging Countries. The study also extends its coverage to include the importance of developing and acquiring systematic and proactive approaches to managing uncertainties in business operations. This is crucial for making SMEs profitable, sustainable, and more stable in the market despite the presence of various challenges. This study will help SMEs have proactive strategies in assessing their resource capabilities to cope with environmental and market forces, resulting in better approaches to managing future uncertainties.

5.2.1 Theoretical Contributions

Theoretically, the study is significant as it addresses the scarcity of studies on the mediating effect of dynamic capabilities (digitalisation and Humanisation) and the moderating role of environmental uncertainties in the relationship between tangible and intangible resources and Malaysian SMEs. Other studies notable studies conducted by Musara & Razafiarivony (2024), Madu et al. (2023), Ahmed et al. (2023), and Acosta-Prado & Tafur-Mendoza (2024) were conducted in other contexts

without particularly focusing on Malaysian SMEs. Furthermore, this study also discusses the link between the independent, dependent, mediating and moderating variables, which can enrich existing literature.

Likewise, empirical evidence from this research work will be explored through the understanding of the predictive power of two main resources (tangible and intangible), dynamic capabilities (digitalisation, Humanisation), environmental uncertainties comprehensively on sustainability, and more explicitly on Malaysian SMEs and indeed contribute to the existing literature. In this sense, measuring these variables based on RBV theory and linking the relationship between the independent, mediating, moderating, and dependent variables is another contribution to the existing body of knowledge. Moreover, studies that seek to explain the interrelationship of these variables in one integrated model appear to be scarce in the literature. The use of RBV theory in this study is significant due to its ability to explain the complex relationship between tangible and intangible resource management and the subsequent outcome that the firm stands to gain.

The RBV theory allows several resources of factors to be grouped in different performance antecedents by suggesting how these elements interact towards achieving greater organisational outcomes. Hence, the theoretical contribution of this study can be indispensable. In addition, the study will contribute to the explorations of academic literature in the context of Malaysian SMEs in overcoming SMEs' sustainability issues. Thus, this study will serve as a guide to academic researchers for future examination of the influence of tangible and intangible resources on SMEs in the quest to ensure sustainability.

5.2.2 Contribution to Organisations

Practically, this research provides crucial information to SMEs and other related firms that can help them maintain their sustainability. Similarly, the findings of the current study will provide policymakers, decision-makers, and government agencies with valuable recommendations and possible actions to take to ensure SMEs' sustainability. In addition, the research work will provide a clear empirical clarification on how the grouping of two resources (tangible and intangible) can address issues on sustainability through dynamic capabilities (digitalisation and Humanisation), and environmental uncertainties. Thus, sustainability has been considered a vital tool towards ensuring the overall success of a firm (Hoang et al., 2020). Enhancing SMES’

sustainability can lead to an increase in the Malaysian GDP and a boost to the economy.

5.2.2.1 Contribution to Agencies and Policy Makers

This study's findings will also benefit governmental and non-governmental institutions, policymakers, and agencies such as banks, SMECorp, Amanah Ikhtiar Malaysia (AIM), Tekun, MATRADE, and others. These agencies will have crucial information on the extent to which Malaysian SMEs need both financial and non-financial assistance, especially towards achieving the long-term success of their businesses. Greater concern will be placed on assisting SMEs in becoming more stable and sustainable within challenging, uncertain market conditions.

5.2.2.2 Contribution to SMEs

This study contributes to SMEs by making them more flexible, profitable, and sustainable in the market. The study also assists SMEs in having a proactive approach to assess and manage their resources to be more adaptable and dynamic despite environmental and market changes. This will assist SMEs obtain a better understanding of resource capabilities and having better strategies to manage future uncertainties.

5.3 LIMITATIONS AND RECOMMENDATIONS FOR FUTURE RESEARCH

This study was carried out in the context of Malaysian SMEs. The results of the survey administered have been influenced mostly by the context of Malaysian SMEs. Therefore, validity generalisation on the current findings was hindered. The same study can easily be replicated in several contexts to ascertain the generalizability of this study and possibly yield different results. In this regard, limitations exist in terms of generalising private sectors. In this research, the private sector includes the entire private sector in Malaysia with different structures, rules and workloads. This study only focuses on Malaysian SMEs as the main players in the country's economy. Though other sectors also substantially contributed to the Malaysian GDP and economy, the outcome might be different in different contexts. Notably, further studies can be carried out involving employees of Malaysian SMEs regardless of their hierarchical positions.

Hence, the current study has provided a noteworthy research framework by exploring two literature streams of resources (tangible and intangible), dynamic capabilities (digitalisation and humanisation), environmental uncertainties, and sustainability. This integrated framework could be empirically investigated in several contexts, especially in Asia and other developing countries. Moreover, this model could be tested across various sectors to confirm the generalization of findings. However, a longitudinal study can be carried out to gain better insight into the impact of these resources (tangible and intangible) on SMEs' sustainability over a longer period. Moreover, future researchers can consider some mediating and moderating constructs to examine if they mediate or moderate the relationship between tangible and intangible resources and SMEs' sustainability.

5.4 CONCLUSION

This study is among the first to investigate the effect of resources (tangible and intangible) on SME sustainability through the mediational effect of dynamic capabilities (digitalisation and humanisation), with the moderating effect of environmental uncertainties in the Asian context, particularly in Malaysia in particular. The emphasis on SME sustainability in Malaysia was due to the consideration that sustainability is a key component of every business as it empowers firms to really identify and overcome several challenges. Hence, SMEs need to ensure sustainability in order to increase their level of competitive advantage. Moreover, the study on firms' resources (tangible and intangible), dynamic capabilities (digitalisation and humanisation), and environmental uncertainties is important to offer insights related to SME sustainability in private organisations.

This study has developed an integrated conceptual framework to explore the influence of resources (tangible and intangible) on SME sustainability in Malaysia through the mediating role of dynamic capabilities (digitalisation and Humanisation) and the moderating effect of environmental uncertainties. The result of this research work discovered a significant direct link between the exogenous and endogenous constructs. Hence, the study concluded that tangible and intangible resources have a significant effect on SMEs' sustainability. In addition, the findings suggest that SMEs' sustainability can be enhanced if the firms maintain effective utilization of their resources (tangible and intangible) through dynamic capabilities (digitalisation and humanisation) and SMEs' ability to overcome environmental uncertainties.

This study contributes multiple insights. First, this study employed mediational and moderation constructs to answer the inconsistencies regarding the relationship between resources (tangible and intangible) and SMEs' sustainability. Second, this study helps improve the understanding towards the role of dynamic capabilities (digitalisation and humanisation) as a mediating construct and environmental uncertainties as a moderation construct. As the mediation construct, dynamic capabilities significantly influence the relationship between resources (tangible and intangible) and SMEs' sustainability. Therefore, while digitalisation is essential in enhancing SMEs' performance and customer satisfaction, its adoption is still yet to reach an optimal level. Firms must maintain strong and effective stakeholder relationships to achieve social and environmental sustainability and increase profits. CSR, VBI, SDGs, reputation, and sustainability are key factors in determining a company's performance and competitive position in the short and long term. Therefore, CSR and VBI positively impact financial institutions and other companies, particularly SMEs. The focus for SMEs should be on CSR, VBI, and SDGs as they directly affect their reputation, which is an essential intangible asset.

Moreover, through a win-win approach, CSR, VBI and SDGs enhance community relationships, corporate reputation, and brand image. Thus, humanisation still has a strong impact on the sustainability of Malaysian SMEs. This aspect provides crucial information to various stakeholders to manage and improve the business's resources for future changes. Combining profit maximization, social benefits, and new value creation will help SMEs achieve sustainable and long-term growth. It also assists SMEs to have a better support system and coaching as well as proactive and systematic approaches to manage any future uncertainties.

The interview session provided inputs that adopting proactive risk assessment frameworks can help stakeholders in Malaysian SMEs by strengthening support for sustainable growth. In addition, the researcher discovered some key points during the interview with the experts, highlighting the importance of a proactive and systematic risk assessment framework towards ensuring the sustainability of Malaysian SMEs. Hence, the study has emphasised the need for SMEs in Malaysia to;

a. Identify potential risks, such as financial, operational, market, and environmental. Employ techniques like SWOT analysis and PESTEL analysis to recognise and classify risks.

b. Evaluate the probability and consequences of identified risks using qualitative and quantitative approaches.
c. Rank risks according to their potential impact on business operations.
d. Create and execute plans to reduce known risks.
e. Create backup plans for critical risks to maintain business operations.
f. Keep a constant watch on the risk environment and the effectiveness of mitigation strategies.
g. Continuously update the risk assessment framework to align with changes in the business environment.
i. Deliver continuous training to small and medium-sized enterprise (SME) owners and managers regarding risk management and assessment methods.
j. Provide support services, including consulting and advisory, to assist SMEs in implementing and managing the risk assessment framework.
k. Ensure the necessity of two-way communications between government agencies and Malaysian SMEs, sharing information, as well as the need for support, public trust, and business owners' awareness.

Similarly, the thematic analysis of the interviews emphasises the complex challenges and opportunities of Malaysian SMEs. A comprehensive approach is needed to tackle these issues, involving improved access to financial resources, enhanced digital capabilities, effective leadership, and robust government support. COVID-19 has forced numerous SMEs to prioritise survival over long-term strategies and digitalisation.

Thus, effective utilisation of a firm’s resources (tangible and intangible) and ensuring dynamic capabilities in terms of digitalisation and humanisation, as well as withstanding environmental uncertainties, need to be emphasised to ensure a sustainable competitive advantage.

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APPENDIX A

QUANTITATIVE QUESTIONNAIRE

MANAGING UNCERTAINTIES TOWARDS SUSTAINABILITY OF MALAYSIAN SMES: DYNAMIC CAPABILITIES PERSPECTIVE

Dear Sir/Madam,

I am Anas Ahmad Abu Jaish, a PhD candidate from the Kulliyyah of Economics and Management Sciences (KENMS), International Islamic University Malaysia (IIUM). I am currently conducting a research entitled "**MANAGING UNCERTAINTIES TOWARDS SUSTAINABILITY OF MALAYSIAN SMES: DYNAMIC CAPABILITIES PERSPECTIVE**" as part of the graduation requirement for my doctoral degree in Business Administration and as such, you are kindly requested to assist me in completing this questionnaire.

For your information, this Questionnaire is expected to take approximately 20 minutes to be completed, and your responses will be kept strictly confidential and will be used for academic purposes only. The information provided in this survey will be coded for data analysis. If your business is not currently operating due to pandemic or any other reason, we still hope to receive your feedback and response towards this survey. I sincerely appreciate your time and value your contributions. Thank you.

Anas Ahmad Abujaish
PhD Candidate in Business Administration
Kulliyyah of Economics and Management Sciences (KENMS)
International Islamic University Malaysia (IIUM)
Jalan Gombak, Kuala Lumpur
HP: 01137437308
Email: j.anas@live.iium.edu.my

MANAGING UNCERTAINTIES TOWARDS SUSTAINABILITY OF MALAYSIAN SMES: DYNAMIC CAPABILITIES PERSPECTIVE

Peserta yang dihormati,

Saya Anas Ahmad Abu Jaish, calon PhD dari Kulliyyah Ilmu Ekonomi dan Pengurusan (KENMS), Universiti Islam Antarabangsa Malaysia (UIAM). Saya sedang menjalankan penyelidikan yang bertajuk "**MANAGING UNCERTAINTIES TOWARDS SUSTAINABILITY OF MALAYSIAN SMES: DYNAMIC CAPABILITIES PERSPECTIVE**" sebagai sebahagian daripada syarat lulus untuk ijazah kedoktoran saya dalam Pentadbiran Perniagaan. Dengan ini, saya ingin menjemput anda untuk membantu saya dalam melengkapkan soal selidik ini.

Untuk makluman anda, soal selidik ini dijangka mengambil masa lebih kurang 20 minit untuk disiapkan, dan jawapan anda akan dirahsiakan dan akan digunakan untuk tujuan akademik sahaja. Maklumat yang diberikan dalam tinjauan ini akan digunakan untuk analisis data. Sekiranya perniagaan anda tidak beroperasi sekarang kerana wabak atau sebab lain, kami tetap berharap untuk menerima maklum balas anda terhadap tinjauan ini. Saya sangat menghargai masa anda dan menghargai sumbangan anda. Terima kasih.

Anas Ahmad Abujaish
PhD Business Administration Candidate
Kulliyyah of Economics and Management Sciences
International Islamic University Malaysia
Jalan Gombak, Kuala Lumpur
HP: 01137437308
Email: j.anas@live.iium.edu.my

PART A: DEMOGRAPHIC INFORMATION

***Bahagian A**: Maklumat Demograf*

SECTION 1: BACKGROUND OF OWNER MANAGER

***Seksyen 1:** Latar Belakang Pemilik/Pengurus*

1. Owner/Manager Name (Optional): _____

Nama pemilik/pengurus (Pilihan): _____

2. Enterprise Name (Optional): _____

Nama perniagaan (Pilihan): _____

3. Gender: ☐ Male ☐ Female

Jantina: □ *Lelaki* □ *Perempuan*

4. Marital Status: ☐ Single ☐ Married ☐ Others: _____

Status perkahwinan: □ *Bujang* □ *Berkahwin* □ *Lain-lain:* _____

5. Age:

☐ 20 – 29 years ☐ 30 – 39 years ☐ 40 – 49 years ☐ 50 years and above *Umur:*

□ *20 – 29 tahun* □ *30 – 39 tahun* □ *40 – 49 tahun* □ *50 tahun dan ke atas*

6. Education:

☐ Primary School ☐ Secondary School ☐ Certificate/Diploma

☐ Undergraduate Degree ☐ Postgraduate Degree

Pendidikan:

□ *Sekolah Rendah* □ *Sekolah Menengah* □ *Persijilan/Diploma*

□ *Ijazah Sarjana Muda* □ *Master/PHD*

7. What are the Skills and Talents that the business owner/manager possesses?

☐ Soft skills ☐ Digital skills ☐ Innovation ☐ Customer relations

☐ Other:……

Apakah jenis kemahiran yang pemilik/pengurus perniagaan miliki?

□ *Kemahiran insaniah (soft skill)* □ *Kemahiran Digital* □ *Inovasi*

□ *Hubungan Pelanggan* □ *Lain-lain :……*

8. Religion

☐ Islam ☐ Buddhism ☐ Hinduism ☐ Christianity ☐ Others: _____

Agama

□ *Islam* □ *Buddha* □ *Hindu* □ *Kristian* □ *Lain-lain:* _____

9. Years in Business

☐ 0 – 5 years ☐ 6 – 10 years ☐ More than 11 years

Tempoh menjalankan perniagaan/bisnes

□ *0 – 5 tahun* □ *6 – 10 tahun* □ *Lebih daripada 11 tahun*

SECTION 2: BACKGROUND OF BUSINESS/ENTERPRISE

Seksyen 2: *Latar Belakang Bisnes/Perniagaan*

1. Legal Form of Business:

☐ Co-operative ☐ Private Limited ☐ Partnership ☐ Sole Proprietorship

☐Others: _____

Bentuk perniagaan:

□ *Koperasi* □ *Sdn Bhd* □ *Perkongsian* □ *Milikan tunggal* □ *Lain-lain:* _____

2. Industry/Sector

☐ Consumer ☐ Hotel and Tourism ☐ Technology ☐ Industrial ☐ Plantation

☐ Constructions ☐Properties ☐Trading/Services ☐Mining ☐Transportation

☐ Others: _____

Industri/Sektor

□ *Pengguna (consumer)* □ *Hotel dan Pelancongan* □ *Teknologi* □ *Perindustrian*

□ *Perladangan* □ *Pembinaan* □ *Hartanah* □*Perniagaan/perkhidmatan*

□ *Perlombongan* □ *Pengangkutan* □ *Lain-lain:* _____

3. Year of Establishment: _____

Tahun penubuhan: _____

4. Total Sales Turnover per year (Ringgit): _____

Jumlah jualan dalam setahun (Ringgit): _____

5. Business Location (State. i.e., Selangor): _____

Lokasi bisnes (Negeri. cth, Selangor): _____

6. How many employees are currently employed at your firm?

☐ 0 – 9 ☐ 10 – 49 ☐ 50 – 99 ☐ 100 – 999 ☐ More than 1000

Bilangan pekerja yang digajikan di syarikat/bisnes anda.

□ *0 – 9* □ *10 – 49* □ *50 – 99* □ *100 – 999* □ *Lebih daripada 1000*

7. Number of family members working full time in your business:_____

Jumlah ahli keluarga yang bekerja sepenuh masa dalam bisnes anda: _____

8. What is the Highest Education level of the employees?

□ Primary School □ Secondary School □ Certificate/Diploma

□ Undergraduate Degree □ Postgraduate Degree

Apakah tahap pendidikan tertinggi dimiliki oleh perkerja perniagaan?

□ *Sekolah rendah* □ *Sekolah Menengah* □ *Persijilan/Diploma*

□ *Sarjana muda* □ *Sarjana*

9. Is your business having business trademark/copyright/patents: Yes / No

Adalah bisnes anda mempunyai tanda dagangan/hak cipta/paten: Ya / Tidak

10. Is your business involved in any of the following contracts and partnership (B2B)?

□ Dropships □ Agents □ Stockist □ Franchising □ None □ other_____

Adakah bisnes anda mempunyai/terlibat dengan sebarang kontrak dan kerjasama (B2B) berikut?

□ *Dropship* □ *Ejen* □ *Stokis* □ *Francais* □ *Tiada* □ *Lain-lain……..*

11. Do you currently receive business support from any organisations/centres/units?

□ Yes (if yes, proceed to question 12) □ No (if no, proceed to question 13)

Adakah anda menerima sebarang bantuan bisnes daripada mana-mana organisasi/pusat/unit?

□ *Ya (Jika ya, sila ke soalan 12)* □ *Tidak (Jika tidak, sila ke soalan 13)*

12. What types of support or coaching are you receiving?

□ Financial support □ Marketing support (offline and online) □ Production support

□ Tools and equipment □ Technological support □ Motivational support

□ Advisory support □ None □ Others……..

Apakah jenis bantuan atau bimbingan yang anda terima?

□ *Bantuan kewangan* □ *Bantuan pemasaran (dalam dan luar talian)* □ *Bantuan Pembuatan* □ *Barangan dan peralatan* □ *Bantuan Teknologi* □ *Bantuan motivasi*

□ *Khidmat Nasihat* □ *Tiada* □ *Lain-lain ……..*

13. During pandemic covid19, is your business continues in operating as usual?

□ Yes, as usual. □ Yes, on online platforms. □ Yes, in lower/limited scales.

□ No, I shut down the business.

Sewaktu wabak covid-19, adakah bisnes anda berjalan seperti biasa?

□ *Ya, seperti biasa.* □ *Ya, secara atas talian.* □ *Ya, dalam skala yang lebih kecil.*

□ *Tidak, saya tutup bisnes saya .*

PART B:

The following questionnaire items follows 5-point Likert Scale measures, i.e. 1= strongly disagree; 2 = disagree; 3 = somewhat agree; 4 = agree; 5 = strongly agree.

Bahagian B:

Perkara soal selidik di bawah mengikut ukuran Skala Likert iaitu, 1= Sangat Tidak Setuju;

2 = Tidak Setuju; 3 = Agak Setuju; 4 = Setuju; 5 = Sangat Setuju.

SECTION 1: TANGIBLE RESOURCES AND INTANGIBLE RESOURCES

SEKSYEN 1: *SUMBER KETARA DAN SUMBER TIDAK KETARA*

TANGIBLE RESOURCES (SUMBER KETARA)						
		1	2	3	4	5
1	*Our firm has high ability in generating internal fund from business operations.* *Perniagaan kami mempunyai keupayaan yang tinggi untuk menghasilkan dana dalaman melalui aktiviti/operasi perniagaan.*					
2	Our firm has high ability in generating external fund by investing in capital market such as investment in shares, bonds, fixed deposits etc. *Perniagaan kami mempunyai kemampuan tinggi dalam menjana dana luaran dengan melabur di pasaran modal seperti pelaburan saham, bon, simpanan tetap dll.*					
3	Our firm has high accessibility to external fund in the form of loans and grants from various governmental and non-governmental agencies.					

	Perniagaan kami mempunyai keupayaan yang tinggi untuk menghasilkan dana luaran melalui pelaburan di agensi kerajaan dan bukan kerajaan (saham, bon, deposit tetap, lain-lain.					
4	Our firm is having proper records on financial reserves (equity capital and liabilities). *Perniagaan kami mempunyai rekod yang baik bagi rizab kewangan (modal ekuiti dan liability.*					
5	Our business premise is located strategically with easy and fast access to customers. *Lokasi premis perniagaan kami strategik dengan akses yang mudah dan pantas kepada pelanggan.*					
6	Our firm has an easy access towards supplies and distribution channels (raw materials, equipment's and fixed assets, technical facilities) *Perniagaan kami mempunyai akses mudah kepada bekalan dan saluran pengedaran (bahan mentah, peralatan dan aset tetap, kemudahan teknikal.*					
7	Our firm is having a clear organisational chart for better coordination (formal position, planning, reporting, control systems etc)). *Perniagaan kami mempunyai carta organisasi yang jelas bagi pengurusan yang lebih baik (jawatan formal, perancangan, laporan, sistem kawalan dll.*					
8	Our firm is currently using adequate technology in the business operation (input, process, output). *Perniagaan kami menggunakan teknologi yang bersesuaian dalam operasi bisnes (input, proses, output.*					
9	Our firm is adapting modern technological advances in the business operation (software applications, security systems, digital marketing, and distribution, etc.) *Perniagaan kami menggunakan kemajuan teknologi moden dalam operasi bisnes (aplikasi perisian (software), sistem keselamatan, pemasaran digital, pengedaran, dll.*					

INTANGIBLE RESOURCES (SUMBER TIDAK KETARA)

		1	2	3	4	5
10	Our firm consists of human resources equipped with relevant knowledge, skills and talents. *Syarikat kami mempunyai sumber manusia yang dilengkapi dengan pengetahuan, kemahiran dan bakat yang relevan.*					
11	The human resource in our firm employs good soft and social skills (communication)					

	Sumber manusia di syarikat kami menggunakan kemahiran insaniah dan sosial (komunikasi) yang baik.					
12	The human resource in our firm employs hard and technical skills (professional and job related). *Sumber manusia di syarikat kami menggunakan kemahiran teknikal (profesional dan berkaitan dengan pekerjaan.*					
13	The human resource in our firm employs adequate knowledge on access to databases, access to informal information and tacit knowledge. *Sumber manusia di syarikat kami mempunyai pengetahuan yang mencukupi mengenai akses ke pangkalan data, akses ke maklumat tidak rasmi dan pengetahuan yang tersirat.*					
14	The human resource in our firm is united by a common organisational culture (shared values, beliefs, attitudes, and behaviors). *Sumber manusia di syarikat kami disatukan oleh budaya organisasi yang sama (nilai, kepercayaan, sikap, dan tingkah laku Bersama.*					
15	Our firm is having clear and effective human resource management (HRM) policies for employees (recruitment, compensation, reward, welfare and benefits, trainings, etc.) *Syarikat kami mempunyai polisi pengurusan sumber manusia (HRM) yang jelas dan berkesan untuk pekerja (pengambilan, pampasan, ganjaran, kebajikan dan faedah, latihan, dll.*					
16	Our firm has efficient relationships with both local and international entities and authorities. *Syarikat kami mempunyai hubungan yang baik dengan entiti dan pihak berkuasa tempatan dan antarabangsa.*					
17	Our firm has the adequate capabilities for research and development, new product development, innovation, and change. *Syarikat kami mempunyai kemampuan yang mencukupi untuk penyelidikan dan pembangunan, pembangunan produk baru, inovasi, dan perubahan.*					
18	Our product/service has outstanding branding and positioning in the mind of the customers. *Produk/perkhidmatan kami mempunyai penjenamaan dan kedudukan yang luar biasa di fikiran pelanggan.*					
19	Our product/service has established high quality, durability, and reliability among customers. *Produk/perkhidmatan kami mempunyai kualiti, ketahanan, dan kebolehpercayaan yang tinggi dalam kalangan pelanggan.*					

SECTION 2: DYNAMIC CAPABILITITES (DIGITALISATION & HUMANISATION) ***SEKSYEN 2:*** *KEUPAYAAN DINAMIK (DIGITALISASI & KEMANUSIAAN)*

DYNAMIC CAPABILITITES – DIGITALISATION (KEUPAYAAN DINAMIK - DIGITALISASI)						
		1	2	3	4	5
1	Our firm quickly adapt to digital platform in accessing customers (e.g., online sales.) *Syarikat kami cepat menyesuaikan diri dengan platform digital dalam mengakses pelanggan (cth., Jualan dalam talian.*					
2	Digital marketing is crucial and highly useful in today's uncertain business environment. *Pemasaran digital sangat penting dan sangat berguna dalam persekitaran perniagaan yang tidak menentu pada masa kini.*					
3	Our business structure has adapted e-commerce activities. *Struktur perniagaan kami telah menggunakan aktiviti e-dagang.*					
4	E-commerce platforms are highly crucial in responding towards environmental uncertainties and challenges. *Platform e-dagang sangat penting dalam menghadapi ketidakpastian dan cabaran persekitaran.*					
5	Our firm utilises e-payment system in the business transactions. *Syarikat kami menggunakan sistem e-pembayaran dalam transaksi perniagaan.*					
6	E-payment system is very convenience, reliable, easy, and competitive. *Sistem e-pembayaran sangat selesa, boleh dipercayai, mudah, dan berdaya saing.*					
7	Our firm is responding fast in adapting digital technology in the production and business operations. *Syarikat kami bertindak pantas dalam mengadaptasi teknologi digital dalam penghasilan dan operasi perniagaan.*					
8	Our firm uses ePOS system in recording sales, manages payments and monitor's inventory. *Syarikat kami menggunakan sistem ePOS dalam merekod jualan, menguruskan bayaran dan memantau inventori.*					
9	ePOS system is an efficient way of reducing operational cost and increasing efficiency of businesses. *Sistem ePOS merupakan kaedah yang berkesan untuk*					

	mengurangkan kos operasi dan meningkatkan kecekapan perniagaan. *Sumber manusia kami cepat memperoleh kemahiran dan pengetahuan mengenai digitalisasi.*					
10	Our human resources are quickly acquiring skills and knowledge on Digitalisation. *Sumber manusia kami cepat memperoleh kemahiran dan pengetahuan mengenai digitalisasi.*					
11	Digital technology is crucial in gaining competitive advantage and maintaining sustainability of our firm. *Teknologi digital sangat penting untuk memperoleh kelebihan daya saing dan mengekalkan kelestarian syarikat.*					

DYNAMIC CAPABILITITES – HUMANISATION(KEUPAYAAN DINAMIK - *KEMANUSIAAN*)						
		1	2	3	4	5
12	Our firm engages in social responsibility initiatives such as Corporate Social Responsibility (CSR), Value-Based Intermediation (VBI) and Sustainable development Goals (SDGs). *Syarikat kami terlibat dalam inisiatif tanggungjawab sosial seperti Tanggungjawab Sosial Korporat (CSR), Pengantaraan Berasaskan Nilai (VBI) dan Matlamat Pembangunan Lestari (SDG)*					
13	Social responsibility initiatives such as CSR, VBI and SDGs are crucial for the stability and sustainability of businesses, especially in uncertain environments. *Inisiatif tanggungjawab sosial seperti CSR, VBI dan SDG sangat penting untuk kestabilan dan kelestarian perniagaan, terutama dalam persekitaran yang tidak menentu.*					
14	Humanisation initiatives in the form of advisory, coaching and support system is crucial in business operations. *Inisiatif humanisasi dalam bentuk sistem nasihat, bimbingan dan sokongan sangat penting dalam operasi perniagaan.*					
15	Initiatives towards Humanisation require strong awareness and mindset changes of the staff/worker as a whole. *Inisiatif ke arah humanisasi memerlukan kesedaran dan perubahan minda yang kuat dari staf / pekerja secara keseluruhan.*					
16	Our firm provides ample, fast, and continuous support for staff/worker development and growth. *Syarikat kami memberikan sokongan yang cukup, cepat, dan berterusan untuk pembangunan dan pertumbuhan kakitangan / pekerja.*					

17	Social responsibility initiatives require continuous and dynamic organisational learnings. *Inisiatif tanggungjawab sosial memerlukan pembelajaran organisasi secara berterusan dan dinamik.*					
18	Strong organisational learning capability of a company ensures effective adjustment to the dynamics of external environments. *Keupayaan pembelajaran organisasi yang kuat/tinggi akan memastikan penyesuaian yang berkesan/efektif terhadap dinamika persekitaran luaran bagi sesebuah syarikat.*					
19	Humanisationinitiatives requires adequate skills and knowledge amongst the human resources. *Inisiatif humanisasi memerlukan kemahiran dan pengetahuan yang mencukupi dalam kalangan sumber manusia.*					
20	Strong leadership is crucial in inculcating the social responsibility initiatives and culture in businesses. *Kepimpinan yang kuat sangat penting dalam menerapkan inisiatif dan budaya tanggungjawab sosial dalam perniagaan.*					

SECTION 3: ENVIRONMENTAL UNCERTAINTIES

SEKSYEN 3: *KETIDAKPASTIAN PERSEKITARAN*

ENVIRONMENTAL UNCERTAINTIES (KETIDAKPASTIAN PERSEKITARAN)						
		1	2	3	4	5
1	Environmental uncertainties cause impact on the existing resources, both tangible and intangible. *Ketidakpastian persekitaran memberikan kesan terhadap sumber sedia ada sesebuah perniagaan, termasuk sumber ketara dan sumber tidak ketara.*					
2	Environmental uncertainties requires necessary changes and upgrades on the existing resources such as enhancing business operations, workers skills and knowledge, marketing initiatives, supply chain system, etc. *Ketidakpastian persekitaran memerlukan perubahan dan penambahbaikan terhadap sumber sedia ada seperti menambah baik operasi perniagaan, kemahiran dan pengetahuan pekerja, inisiatif pemasaran, sistem rantaian bekalan, dll.*					
3	Environmental uncertainties cause difficulty in knowing what kind of response should be taken on the resources (digitalisation and Humanisation). *Ketidakpastian persekitaran menyebabkan kesukaran untuk mengetahui jenis tindak balas yang harus diambil terhadap sumber (digitalisasi – kemanusiaan.*					

4	Environmental uncertainties challenge a particular business sustainability. *Ketidakpastian persekitaran memberikan cabaran terhadap kelestarian sesebuah perniagaan.*					
5	The pandemic Covid19 has given tremendous impact on my business operations, especially in sustaining the costs, sales, supply chains, human resources, profitability and others. *Wabak Covid19 memberikan kesan yang luar biasa pada operasi perniagaan saya, terutamanya di dalam menampung kos, penjualan, rantaian bekalan, sumber manusia, keuntungan dan lain-lain.*					
6	The pandemic Covid19 causes adaption of digitalisation in my business operations. *Wabak Covid19 menyebabkan penggunaan digitalisasi dalam operasi perniagaan saya.*					
7	The Pandemic Covid19 causes adaption of stronger and enhanced support system for example business coaching, advisory support, motivational support, and others. *Pandemic Covid19 menyebabkan penggunan sistem sokongan yang lebih kuat dan dipertingkatkan seperti bimbingan perniagaan, sokongan khidmat nasihat, sokongan motivasi dan lain-lain.*					

SECTION 4: PROACTIVE AND SYSTEMATIC RISK ASSESSMENT

SEKSYEN 4: *PENILAIAN RISIKO PROAKTIF DAN SISTEMATIK*

PROACTIVE AND SYSTEMATIC RISK ASSESSMENT (PENILAIAN RISIKO PROAKTIF DAN SISTEMATIK)						
		1	2	3	4	5
1	We are aware on the existence of risk assessment tools and mechanisms for businesses *Kami sedar tentang kewujudan alat dan mekanisme penilaian risiko untuk perniagaan*					
2	Ability in utilising risk assessment tools is important to ensure the stability and sustainability of our business. *Keupayaan dalam menggunakan alat penilaian risiko adalah penting untuk memastikan kestabilan dan kelestarian perniagaan kita.*					
3	Proactive and systematic risk assessment tools will prevent our businesses from failure due to environmental changes. *Alat penilaian risiko yang proaktif dan sistematik mampu menghalang perniagaan kita daripada kegagalan disebabkan oleh perubahan persekitaran.*					
4	Proactive and systematic risk assessment tools will assist our business in controlling costs that could occur due to environmental changes. *Alat penilaian risiko yang proaktif dan sistematik akan membantu perniagaan kami dalam mengawal kos yang mungkin berlaku akibat perubahan persekitaran.*					
5	Proactive and systematic risk assessment tools will assist our firm in having better planning for the future. *Alat penilaian risiko yang proaktif dan sistematik akan membantu syarikat kami dalam membuat perancangan yang lebih baik untuk masa depan.*					
6	Proactive and systematic risk assessment tools will assist our firm in developing relevant strategies in facing future uncertainties. *Alat penilaian risiko yang proaktif dan sistematik akan membantu syarikat kami dalam membentuk strategi yang relevan dalam menghadapi ketidakpastian pada masa hadapan.*					
7	Digitalisation and technological advances facilitate the development of proactive and systematic risk assessment tools. *Digitalisasi dan kemajuan teknologi memudahkan pembangunan alat penilaian risiko yang proaktif dan sistematik.*					

8	Adaptation of proactive and systematic risk assessment tools requires adequate advisory and support system (Humanisation). *Penyesuaian alat penilaian risiko yang proaktif dan sistematik memerlukan sistem nasihat dan sokongan yang mencukupi (humanisasi).*					

SECTION 5: SUSTAINABILITY OF BUSINESS

SEKSYEN 5: *KEMAMPANAN BISNES* .

SUSTAINABILITY OF BUSINESS (*KEMAMPANAN BISNES*)						
		1	2	3	4	5
1	Sustainability of a business depends on the speed on responses towards environmental changes. *Kelestarian perniagaan bergantung kepada kepantasan tindak balas terhadap perubahan persekitaran.*					
2	Digitalisation initiatives ensures long term sustainability of businesses. *Inisiatif digitalisasi memastikan kelangsungan perniagaan dalam jangka masa yang Panjang.*					
3	Having good advisory and support system will assist businesses in being more sustainable in the longer term. *Mempunyai sistem nasihat dan sokongan yang baik akan membantu perniagaan menjadi lebih mapan dalam jangka masa yang panjang.*					
4	Our firm has strong capabilities in ensuring sustainability throughout the business operations. *Syarikat kami mempunyai keupayaan yang tinggi dalam memastikan keberlangsungan sepanjang operasi perniagaan.*					
5	Our firm resources are always prepared to face potential environmental uncertainties. *Sumber syarikat kami sentiasa bersedia untuk menghadapi ketidakpastian persekitaran.*					
6	Our firm resources are made flexible in facing potential environmental uncertainties. *Sumber syarikat kami adalah fleksibel dalam menghadapi ketidakpastian persekitaran.*					

- THANK YOU FOR YOUR COOPERATION -
- (TERIMA KASIH ATAS KERJASAMA ANDA)-

APPENDIX B THE INTERVIEW QUESTIONS

MANAGING UNCERTAINTIES TOWARDS SUSTAINABILITY OF MALAYSIAN SMES: DYNAMIC CAPABILITIES PERSPECTIVE

Dear Sir/Madam,

I am Anas Ahmad Abu Jaish, a PhD candidate from the Kulliyyah of Economics and Management Sciences (KENMS), International Islamic University Malaysia (IIUM). I am currently conducting a research entitled "**MANAGING UNCERTAINTIES TOWARDS SUSTAINABILITY OF MALAYSIAN SMES: DYNAMIC CAPABILITIES PERSPECTIVE**" as part of the graduation requirement for my doctoral degree in Business Administration and as such, you are kindly requested to assist me in completing this Interview.

For your information, this interview is expected to take approximately 30 - 45 minutes to complete, and your responses will be kept strictly confidential and will be used for academic purposes only. The information provided in this interview will be coded for data analysis. We hope to receive your feedback and response towards this interview. I sincerely appreciate your time and value your contributions.
Thank you.

Anas Ahmad Abujaish
PhD Candidate in Business Administration
Kulliyyah of Economics and Management Sciences (KENMS)
International Islamic University Malaysia (IIUM)
Jalan Gombak, Kuala Lumpur
HP: 01137437308
Email: j.anas@live.iium.edu.my

The Interview Questions

Research Objectives	Questions
To examine the issues and challenges pertaining to resource capabilities amongst Malaysian SMEs in achieving sustainability.	1- Would tangible resources such as (financial resources like having the ability to generate funds and having proper records of financial reserves, physical resources like having a good location and easy access to customers, and organisational resources like having easy access towards supplies) provide an impact on the sustainability of Malaysian SMEs? In what way would tangible resources impact the sustainability of Malaysian SMEs? Is the impact significant or not? 2- What are your thoughts about intangible resources such as (relational resources, reputational resources and innovation)? Would intangible resources be significant in securing the sustainability of small and medium-sized enterprises (SMEs) in Malaysia? To what extent do you think intangible resources impact Malaysian SMEs' sustainability?
To determine the relative importance of the humanisation digitalisation movement perceived by Malaysian SMEs.	3- Digitalising business operations in various aspects, such as digital marketing, e-commerce, e-payment systems, and digital technology in production, can assist Malaysian SMEs to be more sustainable; what are your views on this?
	4- Humanisation, such as having a good support system, strong organisational learning capabilities, high skills and knowledge and effective leadership, could enhance business operations for Malaysian SMEs' sustainability; what are your thoughts on this? To what extent do to think humanisation very important for Malaysian SMEs?
To determine the mediating impact of Humanisation and digitalisation (dynamic capabilities) towards the successful achievement of sustainability amongst Malaysian SMEs.	5- What are your thoughts on the impact of Dynamic Capabilities (Digitalisation and Humanisation) on strengthening the relationships between tangible and intangible resources and the sustainability of Malaysian SMEs? 6- What should SMEs concentrate on more? How to make their resources more dynamic?
To assess the moderating	7- How can SMEs manage environmental uncertainties and market forces?

impact of environmental uncertainties towards the relationship between resources and successful achievement of sustainability amongst Malaysian SMEs.	8- How do you see the effects of Environmental Uncertainties EU on Malaysian SMEs' sustainability? In what way EU would impact the Malaysian SMEs' sustainability? 9- What do you recommend for business owners to overcome future uncertainties? How the resources should be to handle potential environmental challenges better?
To provide recommendations on developing a proactive and systematic risk assessment for Malaysian SMEs	10- To prevent Malaysian SMEs from any failure due to environmental changes SMEs should have a proactive and systematic risk assessment, how can Malaysian SMEs develop relevant strategies to face future uncertainties and have better planning? How will this benefit them? 11- What are your views on adapting digitalisation and technological advances and having adequate advisory and support systems (Humanisation) to facilitate the development of proactive and systematic risk assessment tools? 12- What type of proactive and risk assessment is available for Malaysian SMEs? How may proactive and risk assessment strategies be performed effectively in Malaysian SMEs? 13- What should be the response of SMEs managers or owners towards implementing proactive and risk assessment strategies?
	14- Is it possible to obtain strong capabilities and resources (Digitalisation Initiatives and Humanisation(good advisory and support system)) that will help SMEs to be more sustainable and have a speedy response to environmental changes in the short and long run? If yes To what extent do you think this could be possible and how to apply this for Malaysian SMEs?
	15- What are the initiatives that should be implemented for SMEs' sustainability? What is the role of governmental and non-governmental institutions, policymakers, and agencies such as banks, SMECorp, Amanah Ikhtiar Malaysia (AIM), Tekun, MATRADE and others in providing better assistance for Malaysian SMEs?

THANK YOU FOR YOUR COOPERATION

APPENDIX C PARTICIPANT'S CONSENT FORM

الجامعة الإسلامية العالمية ماليزيا
INTERNATIONAL ISLAMIC UNIVERSITY MALAYSIA
يونيرسيتي إسلام انتارابغسا ملايسيا

Participant's Consent Form

Research Title

MANAGING UNCERTAINTIES TOWARDS SUSTAINABILITY OF MALAYSIAN SMES: DYNAMIC CAPABILITIES PERSPECTIVE

I am Anas Ahmad Abu Jaish, a PhD candidate from the Kulliyyah of Economics and Management Sciences (KENMS), International Islamic University Malaysia (IIUM). I am currently conducting research entitled: **MANAGING UNCERTAINTIES TOWARDS SUSTAINABILITY OF MALAYSIAN SMES: DYNAMIC CAPABILITIES PERSPECTIVE**" as part of the graduation requirement for my doctoral degree in Business Administration and as such, you are kindly requested to assist me in completing this Interview.

For your information, this interview is expected to take approximately 30 - 45 minutes to complete, and your responses will be kept strictly confidential and will be used for academic purposes only. The information provided in this interview will be coded for data analysis. We hope to receive your feedback and response towards this interview. I sincerely appreciate your time and value your contributions.
Kindly read the following terms and sign below to give your kind consent for participation in this research study.

1. I have read the Information Sheet for this study and have had details of the study explained to me.
2. My questions about the study have been answered to my satisfaction, and I understand that I may ask further questions at any point.
3. I understand that I am free to withdraw from the study within the time limits outlined in the Information Sheet without giving a reason for my withdrawal or to decline to answer any particular questions in the study without any consequences to my future treatment by the researcher.
4. I agree to provide information to the researcher under the conditions of confidentiality set out in the Information Sheet.
5. I wish to participate in the study under the conditions set out in the Information Sheet.
6. I consent to the information collected for this research study, once anonymised (so that I cannot be identified), to be used for any other research purposes.

I agree to participate in the study: ---------- **(Signature)**

Name of the participants: **Date:**