A Framework for Success: Digital Business Models (DBM) for Small and Medium Enterprises (SMEs)

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Abstract
In the age of digital advancement, Small and Medium Enterprises (SMEs) must adopt digital transformation to stay competitive in the marketplace. The main objective of this study is to outline a strategic approach to develop a digital business model (DBM) that harnesses the power of technology to drive growth and sustainability for SMEs in Malaysia. This paper presents a comprehensive guide to crafting a DBM tailored to unique needs. This paper also explores key business model components such as value creation, value delivery, and value capture. Hence, this study is conducted to gather and synthesize the current knowledge on this topic. The research methodologies include secondary data sources, such as journals and articles obtained from online databases. The originality of this study is the use of the DBM in the business setting. The findings of this study enhance the understanding of the role of DBM for SMEs, policymakers, and researchers, especially in developing countries.
Keywords: Small and Medium-Sized Enterprises (SMES), Digital Business Model (DBM), Value Creation, Value Delivery, Value Capture, Malaysia

Introduction
The digital revolution has reshaped the business landscape, presenting both challenges and opportunities for Small and Medium Enterprises (SMEs) in Malaysia. To remain relevant and resilient in today's economy, SMEs must embrace digitalization across all aspects of their

operations. Digital technologies such as the Internet of Things (IoT), blockchain, cloud computing, big data, and many more are profoundly affecting business activities and processes, thus leading to changes in organizations' value creation, value delivery, and value capture. SMEs are increasingly leveraging digital technologies and tools to boost their competitiveness and productivity. These technologies include digital marketing tools, digital communication tools, online platforms, and social media. SMEs use social media and digital platforms to grow their business and improve their customer relationship management (CRM) (Kwarteng et al., 2021). They integrate digital business strategies and internet-based technology to enhance their competitiveness.

The Gross Domestic Product (GDP) of Malaysia's Micro, Small, and Medium Enterprises (MSMEs) significantly increased by 11.6 percent in 2022, above the total national GDP growth rate of 8.7 percent. MSMEs contributed the most to the GDP, accounting for 38.4 percent, with a value addition of RM580.4 billion. In 2022, the exports of MSMEs amounted to RM144.5 billion, showing a growth of 16.3%. Furthermore, In 2022, the exports of SMEs accounted for 10.5 percent of the overall exports. In 2022, 48.2% of Malaysia's total employment was provided by SMEs, compared to 47.8% in 2021. This highlights the increasing importance of SMEs in stimulating economic growth. Tables 1, 2, and 3 provide information regarding the profile and performance of SMEs in Malaysia.

Table 1
Profile of Micro Small Medium Enterprises (MSMEs) in 2022 based on sectors.

No	Sectors	Total firms	Percentage
1.	Services	994,350	84.7%
2.	Construction	92924	7.9%
3.	Manufacturing	65,657	5.6 %
4.	Agriculture	16,441	1.4%
5.	Mining & quarrying	4229	0.4%

Source: Department of Statistics, Malaysia (DOSM) & SME CORP

Table 2
Profile of Small Medium Enterprises (SMEs) in 2022 based on category.

No	Category	Total firms	Percentage
2.	Small	231,546	19.7%
3.	Medium	18,388	1.6%
	Total		

Source: Department of Statistics, Malaysia (DOSM) & SME CORP

Table 3
Performance of Micro Small Medium Enterprises (MSMEs) in 2022.

No	Category	RM	Percentage
1.	GDP	580.4 Billion	38.4%
2.	Export	144.5 Billion	10.5%
3.	Employment	7.59 Million	48.2%

Source: Department of Statistics, Malaysia (DOSM) & SME CORP

The digital revolution has reshaped industries, challenging businesses to rethink traditional models and embrace innovation. Digitalization encompasses a wide spectrum of technologies and strategies that enable organizations to streamline processes, connect with customers, and stay ahead of the curve in today's fast-paced environment. This can be achieved through the integration of services and the Internet of Things (IoT) into industrial processes. Recent developments, including the mobile revolution, social media, and analytics capabilities, have particularly precipitated the digital transformation of business models. Consumers are provided with abundant information that can be accessed through the Internet and are presented with a variety of channels from which to select.

Many SMEs primarily depend on traditional technologies like websites and collaborative platforms. They place great importance on effective online communication and establishing a strong online presence in today's economic environment. For example, digital technology is now being used in the manufacturing industry to enhance processes and machine tools, hence minimizing human error, cost, and time (Zhang et al., 2023). In addition, smart manufacturing is driving a technological revolution that is significantly reshaping the fundamental principles of value creation and delivery within the manufacturing industry (Singh et al., 2023). However, SMEs' integration of digital technologies is still limited since several encounter difficulties in comprehending and exploring this technology (Zamani, 2022).

The study conducted by SME Corporation Malaysia and Huawei Technologies (M) Sdn Bhd in 2018, it was revealed that 23% of Malaysian SMEs have intentions to embrace an e-commerce business model (Teoh et al., 2022). On the other hand, 33% of Malaysian SMEs have no plans to enter the e-commerce market due to the difficulties associated with managing both offline and online operations, as well as the increased workload for their employees (Teoh et al., 2022). According to Menon and Gan (2020), only a small number of Malaysian SMEs have implemented a digital business model (DBM), indicating that its presence is still in its early stages. Entrepreneurs and SMEs in Malaysia are prone to encountering a deficiency in technology adoption or digitalization, as stated in the MOHE Guide to Entrepreneurship Integrated Education (EIE), 2021. In addition, SMEs need to adopt a DBM to support transformation and, as a result, change the processes that organizations use to create, provide, and capture value.

The next section reviews the relevant literature related to SMEs, digitalization in a business context, and DBM. The second section describes the methodology and procedure used for the present study. Further ahead, the next section discusses the key components of a DBMI for SMEs. Finally, the article concludes with the implications and future directions.

Objective
This study aims to propose the Digital Business Model (DBM) as a comprehensive framework to enhance the digital transformation of small and medium-sized enterprises (SMEs) in Malaysia. The DBM framework is designed to address the unique challenges faced by SMEs and leverage digital technologies to drive growth, efficiency, and sustainability.

Literature Review
Small and Medium Enterprises (SMEs) in Malaysia

The 14th National Skill Development Corporation (NSDC) Meeting in July 2013 in Malaysia approved the definition of small and medium-sized enterprises (SMEs). The definition encompasses all sectors: manufacturing, construction, services, mining & quarrying, and agriculture. A business will be classified as an SME if it fulfills all three (3) conditions regarding the qualifying criteria, type of establishment, and shareholding structure. All SMEs must be entities registered with Suruhanjaya Syarikat Malaysia (SSM) or other equivalent bodies. Sales turnover and the number of full-time employees are the two qualifying criteria used in determining the definition of SMEs. In the manufacturing sector, SMEs are defined as firms with sales turnover not exceeding RM50 million or number of full-time employees not exceeding 200. In addition, for services and other sectors, SMEs are defined as firms with sales turnover not exceeding RM20 million OR number of full-time employees not exceeding 75. A detailed definition of the category, namely micro, small, and medium, is in the table below:

Table 4
Category of small and medium-sized enterprises (SMEs) in Malaysia

Category	Manufacturing	Service and other sectors
Medium	Sales turnover: RM15 mil $\leq$ RM50 mil OR Employee: From 75 $\leq$ 200	Sales turnover: RM3 mil $\leq$ RM20 mil OR Employee: From 30 $\leq$ 200
Small	Sales turnover: RM300,000 $<$ RM15 mil OR Employee: From 5 $<$ 75	Sales turnover: RM300,000 $<$ RM3 mil OR Employee: From 5 $<$ 30

Source: SME Corporation Malaysia

Digitalization in Business Context

Digitization refers to the conversion of analog and noisy information into digital data (Brennen & Kreiss, 2016). Digitalization is defined as the application of digital technologies to innovate business models and create new value-generating opportunities within industrial ecosystems (Parida et al., 2019). Digitalization has become synonymous with innovation, efficiency, and adaptability in the modern business landscape. Bloching et al., (2015) defined digital transformation as the integration of all sectors of business and the adjustment to meet the demands of the digital economy. Digitalization is a catalyst for business transformations because it introduces new internet-based technologies that have implications for all business industries. Digitalization, on the other hand, refers to the changes in an organization and its business model resulting from the increased use of digital technologies to enhance performance and expand the business (Westerman et al., 2011). Digitalization has evolved from a technological process to a phenomenon that can influence all types of organizations. Furthermore, the process of digitization has shown its advantages for small and medium-sized enterprises (SMEs) by helping them prevent a full economic standstill during the COVID-19 crisis (Khai et al., 2020). A significant number of SMEs who have shown both the willingness and capability to adopt digital business models have managed to survive.

Digitalization in the business context refers to the process of incorporating digital technologies and strategies into many aspects of an organization to enhance efficiency,

productivity, and competitiveness. Embracing digitalization is crucial for ensuring the long-term viability of organizations and remaining competitive in the market. Digital technologies can enhance development that is both inclusive and sustainable by stimulating innovation, creating efficiency, and enhancing the quality of goods or services (Rachinger et al., 2018). Reduces operating costs and improves efficiency to create new business models and revenue sources. Improve customer experience by providing a better customer experience and improving communication with customers, generating closer bonds with clients. Strengthen and enhance the company's brand. For many businesses, digitization not only implies a greater fluency in their internal processes but also gives the organization a competitive advantage in the market.

Digital Business Model (DBM)
A business model is a framework that outlines how an organization generates and provides value to its consumers, as well as the strategies it uses to profit from that value. Wirtz et al., (2016) define business models as "a simplified and aggregated representation of the relevant activities of a company. It explains how a company's value-added component generates marketable information, products, and/or services. In addition to the architecture of value creation, strategic as well as customer and market components are considered to achieve the superordinate goal of generating, or rather, securing the competitive advantage." Business models are useful frameworks that depict the components and connections inside firm operations, serving as a tool for planning, communication, and enhancement by bridging strategies and business processes (Osterwalder & Pigneur, 2002; Massa et al., 2017). Using business model concepts, an organization can articulate its operations in terms of "its activities," "its products or services," and "how it delivers its offerings" (Ritter & Lettl, 2018). The use of a Business Model Canvas (BMC), such as the one developed by Osterwalder & Pigneur's (2010) tool, may be very successful in aiding users in comprehending an organization's business model. The BMC assists users in graphically illustrating the components of a business model and the possible interrelationships and effects on organizations' value creation, value delivery, and value capture mechanisms (Sabri et al., 2023; Osterwalder & Pigneur, 2010).

A digital business model (DBM) defines how a company creates, delivers, and captures value in the digital realm. It encompasses various elements, including value creation, value delivery, and value capture (Bouncken, 2019). A business model that incorporates digital technology to bring about significant transformations in an organization. DBM, unlike traditional business models, leverages digital technologies to create new sources of value and differentiate offerings in the market. Many previous research has examined the significance of business models in enhancing firm competitiveness and performance (Osterwalder & Pigneur, 2010; Teece, 2018; Hamelink & Opdenakker, 2019). Hence, the objective of this study is to propose the DBM as a comprehensive framework for small and medium-sized enterprises (SMEs) in Malaysia

Research Methodology
This research is entirely based on secondary data gathered from various sources. The data has been gathered from a variety of journals, research papers, books, case studies, newspapers, websites, and other online databases such as Sage, Science Direct, Springer Link, and Emerald. The study uses the following key terms as a starting point: small and medium

enterprises (SMEs), Business Model, and Digital Business Model (DBM). Therefore, this paper presents a comprehensive analysis of the DBM for SMEs, driven by the available data.

Discussion

This part focuses on addressing the main research objectives: the components of a digital business model (DBM) framework tailored for small and medium-sized enterprises (SMEs). SMEs can leverage the framework's structured approach to enhance their business performance and sustainability.

Key Components of a Digital Business Model (DBM) for Small and Medium Enterprises (SMEs)
A Digital Business Model (DBM) for SMEs integrates various elements that leverage digital technologies to enhance business performance, customer engagement, and operational efficiency. Therefore, to help entrepreneurs sustain their businesses, this study proposes a digital business model as a framework for SMEs in Malaysia (refer to Figure 1). The following provides an elaborate explanation of the key components of a DBM specifically designed for SMEs:

Value Creation			Value Delivery	
Using new skills, strategic alliances, digital technology, and streamlined value-added processes to generate value for specific target segments.			Use of digital technology by SMEs to reach out to new consumer groups and explore new distribution channels to provide added value to customers.	
Key partners Collaborating with technology partnerships.	**Key Activities** Focused on developing and refining digital products or platforms that align with the identified customer needs. and value propositions.	**Value Proposition** Offer digital products or services that address specific customer needs	**Customer Relationship** Engage with customers through digital interactions, including personalized communications, feedback mechanisms, and loyalty programs.	**Customer Segment** Target different age groups with tailored digital offerings; for example, social media ads aimed at younger demographics and email campaigns for older segments.
	Key Resources digital assets and capabilities that a business needs to operate effectively and create value.		**Channel** utilize digital channels such as websites, mobile apps, and social media platforms to deliver products, services, and information to customers.	
Value capture The process of identifying and obtaining new sources of income by leveraging an efficient cost structure via the use of digital technologies.				
Cost Structure Use of digital technology to create new methods of generating money and reducing cost.			**Revenue Streams** The income generated by a business through digital channels, platforms, or technologies.	

Figure 1: Digital Business Model for SMEs
(Framework adapted from Osterwalder & Pigneur, 2010).

Digital Value Creation

Digital value creation involves using new skills, strategic alliances, digital technology, and streamlined value-added processes to generate value for specific target segments (Clauss et al., 2019). Value-creating relies on using digital technology to collaborate with cloud partners and access data streams on client purchasing behaviors, hence assisting enterprises in delivering optimum services (Blaschke et al., 2017). Besides that, collaborating with technology partnerships, such as vendors, platforms, or service providers, to access cutting-edge solutions and capabilities can enhance value creation. SMEs also can form partnerships with content creators, publishers, or media platforms to enrich the digital experience and provide additional value to customers. Regarding distribution, SMEs can partner with digital marketplaces, e-commerce platforms, or distribution channels to expand market reach and access new customer segments. In the context of the DBM, digital key resources refer to the essential digital assets and capabilities that a business needs to operate effectively and create value, such as technology infrastructure, digital platforms, software and systems, and digital channels. SMEs can establish strategic alliances with industry leaders or complementary businesses to pool resources, share expertise, and create synergies that drive value creation.

Key activity is focused on developing and refining digital products or platforms that align with the identified customer needs and value propositions. SMEs can embrace a culture of innovation and agility to stay ahead of the curve, constantly improving existing offerings and exploring new opportunities enabled by digital technologies. SMEs should use data analytics to gain insights into customer behavior, preferences, and market trends, informing decision-making and optimizing key activities for maximum value creation. Furthermore, in terms of value proposition, SMEs must offer digital products or services that address specific customer needs (Teoh et al., 2023; Panda, 2019). Provide personalized experiences through data-driven insights and customization options, enhancing the perceived value for customers. Incorporate interactive elements such as gamification, virtual experiences, or social engagement features to enhance user engagement and satisfaction. In line with previous research on European SMEs, it has been shown that information technology, social media, and big data have been used to reinvent business models and provide value to consumers digitally (Bouwman et al., 2019). Consequently, value creation within the DBM encompasses identifying customer needs, delivering unique value propositions, optimizing key activities and resources, and leveraging strategic partnerships to innovate and differentiate in the marketplace continually (Teoh et al., 2022).

Digital Value Delivery

Value delivery in a digital business model (DBM) pertains to a company's effective delivery and realization of the value it promises to customers through its value proposition. Digital value delivery refers to the use of digital technology by SMEs to reach out to new consumer groups and explore new distribution channels to provide added value to customers (Baber et al., 2020; Clauss et al., 2019; Panda, 2019). To provide customers with exceptional value, SMEs may foster ongoing engagement with customers through digital interactions, including personalized communications, feedback mechanisms, and loyalty programs (Ibarra et al., 2018). SMEs can create digital communities or forums where customers can connect, share experiences, and provide peer support. Thus, SMEs can use data analytics to personalize customer interactions and tailor offerings to individual preferences and needs.

In addition, anticipate customer needs and proactively communicate relevant information, updates, and offers through digital channels. Utilize digital channels such as websites, mobile apps, and social media platforms to deliver products, services, and information to customers. Enable online purchasing and transactions through e-commerce platforms, providing customers with convenient access to products and services. Leverage digital marketing channels such as email, search engines, and social media advertising to reach and engage target audiences with personalized messaging. Multiple case studies on Japanese high-tech SMEs have confirmed that the process of creating new value through digital platforms involves replacing physical distribution with indirect distribution channels, creating innovative digital platforms, using e-communication to improve physical distribution, and providing various options for product delivery to speed up the process (Baber et al., 2019).

In terms of customer segmentation, SMEs have to target different age groups with tailored digital offerings; for example, social media ads aimed at younger demographics and email campaigns for older segments. Tailor digital marketing messages and product features to resonate with customers' lifestyles, interests, and values using social media listening tools and personalized content. Provide time-saving solutions and services that cater to the needs of busy professionals looking for efficient and hassle-free digital experiences.

Digital Value Capture
Cost structure outlines the costs associated with operating a business (Osterwalder & Pigneur, 2010). This encompasses both fixed and variable expenditures, such as manufacturing costs, marketing, promotional, and other administrative expenses. Digital value capture refers to the use of digital technology to create new methods of generating money and reducing costs (Clauss et al., 2019; Still et al., 2017). Value capture refers to the process of identifying and obtaining new sources of income by leveraging an efficient cost structure via the use of digital technologies. Digital Investments allocate resources towards digital initiatives, including technology investments, talent acquisition, and marketing expenditures, to support value delivery efforts. SMEs that invest a significant amount of money in advanced digital technologies and software should do a risk assessment to determine whether the benefits of their investment exceed the costs (Parida et al., 2019).

Small and medium-sized enterprises (SMEs) must effectively handle the expenses related to digital infrastructure, content production, customer assistance, and data administration, all while prioritizing efficiency and cost-efficiency. Besides that, SMEs have to Invest in customer acquisition and retention strategies through digital marketing, customer relationship management, and loyalty programs to sustain value delivery over time. A digital revenue stream refers to the income generated by a business through digital channels, platforms, or technologies. These revenue streams typically arise from online sales, digital services, or the use of technology-based businesses such as e-commerce, digital advertising, affiliate marketing, and online content (education, training, webinars). SMEs need to develop methods for making money that are in line with their unique selling points and the specific market they are targeting. These options may include models that need a subscription, charging based on use, delivering a basic version for free with more features available for a fee, or collaborating with companies that complement the product or service.

Conclusion

In an increasingly digitalized world, Small and Medium Enterprises (SMEs) must embrace digital business models to remain competitive and sustainable. By leveraging technology to innovate, create value, and engage customers effectively, SMEs can unlock new growth opportunities and navigate the complexities of the digital economy with confidence. Besides that, SMES also embrace technology to ensure long-term viability, maintain a competitive edge, expand outreach, interact with a larger consumer base, and enable management to make strategic decisions. Successful implementation of a DBM requires careful planning, execution, and iteration. SMEs should prioritize agility, experimentation, and continuous learning to adapt to evolving market dynamics and customer needs. Additionally, fostering a culture of innovation and digital literacy within the organization is essential for driving digital transformation from within.

In conclusion, the DBM for SMEs in Malaysia provides a structured approach to leveraging digital technologies for business growth and sustainability. By focusing on customer-centric solutions, multi-channel engagement, advanced technologies, financial planning, skills development, cybersecurity, performance measurement, and fostering a culture of adaptability and innovation, SMEs can successfully navigate the digital transformation journey and achieve long-term success. As digital transformation continues to evolve, future research in the area of DBM for SMEs should focus on several key areas to further enhance understanding and implementation. These areas include exploring emerging technologies, assessing the impact of digital transformation, understanding industry-specific challenges, and developing frameworks for continuous improvement.

References

Baber, W. W., Sarata, M., & Tsukamoto, M. (2020). Business model innovation: a Japanese SME driven to full digitalization by corporate philosophy. *Transforming Japanese business: Rising to the digital challenge*, 91-104.

Bouncken, R. B., Kraus, S., & Roig-Tierno, N. (2019). Knowledge-and innovation-based business models for future growth: Digitalized business models and portfolio considerations. *Review of Managerial Science*, *15*(1), 1-14.

Blaschke, M., Cigaina, M., Riss, U. V., & Shoshan, I. (2017). Designing business models for the digital economy. *Shaping the Digital Enterprise: Trends and Use Cases in Digital Innovation and Transformation*, 121-136.

Bloching, B., Leutiger, P., Oltmanns, T., Rossbach, C., Schlick, T., Remane, G., ... & Shafranyuk, O. (2015). Die digitale Transformation der Industrie. *Roland Berger Strategy Consultants GmbH & Bundesverband der Deutschen Industrie, München*.

Bouwman, H., Nikou, S., & de Reuver, M. (2019). Digitalization, business models, and SMEs: How do business model innovation practices improve the performance of digitalizing SMEs? *Telecommunications Policy*, *43*(9), 101828.

Brennen, J. S., & Kreiss, D. (2016). Digitalization. *The international encyclopedia of communication theory and philosophy*, 1-11.

Clauss, T., Abebe, M., Tangpong, C., & Hock, M. (2019). Strategic agility, business model innovation, and firm performance: an empirical investigation. *IEEE transactions on engineering management*, *68*(3), 767-784.

Department of Statistics Malaysia. (2024). Micro, Small & Medium Enterprises (MSMEs) Performance 2022. Retrieved from https://www.dosm.gov.my/portal-main/release-content/micro-small--medium-enterprises-msmes-performance-2022

Department of Statistics Malaysia. (2024). Micro, Small & Medium Enterprises (MSMEs) Performance 2022. Retrieved from https://www.dosm.gov.my/uploads/release-content/file_20230727111608.pdf

Department of Statistics Malaysia. (2024). Micro, Small & Medium Enterprises (MSMEs) Performance 2022. Retrieved from https://www.smecorp.gov.my/index.php/en/policies/2020-02-11-08-01-24/sme-statistics

Hamelink, M., & Opdenakker, R. (2019). How business model innovation affects firm performance in the energy storage market. *Renewable energy*, *131*, 120-127.

Ibarra, D., Ganzarain, J., & Igartua, J. I. (2018). Business model innovation through Industry 4.0: A review. *Procedia manufacturing*, *22*, 4-10.

Kwarteng, M. A., Jibril, A. B., Nwaiwu, F., Pilík, M., & Chovancova, M. (2021). The prospects of Internet-based channel Orientation for the competitiveness of service companies in the domestic market. *International Journal of Information Management*, *58*, 102223.

Khai, K. G., Onn, Y. W., Zulkifli, R. B., Kandasamy, S., & Ahmad, A. B. (2020). The necessity to digitalize SME business model during the COVID-19 pandemic period to remain sustainable in Malaysia. *Korea*, *99*, 47-7.

Massa, L., Tucci, C. L., & Afuah, A. (2017). A critical assessment of business model research. *Academy of Management Annals*, *11*(1), 73-104.

Ministry of Higher Education Malaysia (2020). MOHE Guide to Entrepreneurship Integrated Education. (EIE), Ministry of Higher Education, Putrajaya.

Menon, S., & Gan, X. T. (2020). Embracing digital technology. The Star. https://www.thestar.com.my/news/education/2020/02/02/embracing-digital-technology

Osterwalder, A. and Pigneur, Y. (2002), "An e-business model ontology for modeling eBusiness," 15th Bled Electronic Commerce Conference reality: Constructing the economy, Bled, June 17-19,

Osterwalder, A., & Pigneur, Y. (2002). An e-business model ontology for modeling eBusiness.

Osterwalder, A., & Pigneur, Y. (2010). *Business model generation: a handbook for visionaries, game changers, and challengers* (Vol. 1). John Wiley & Sons.

Panda, B. K. (2019). Application of business model innovation for new enterprises: A case study of digital business using a freemium business model. *Journal of Management Development*, *39*(4), 517-524.

Parida, V., Sjödin, D., & Reim, W. (2019). Reviewing literature on digitalization, business model innovation, and sustainable industry: Past achievements and future promises. *Sustainability*, *11*(2), 391.

Rachinger, M., Rauter, R., Müller, C., Vorraber, W., & Schirgi, E. (2018). Digitalization and its influence on business model innovation. *Journal of Manufacturing Technology Management*, *30*(8), 1143-1160.

Remane, G., Hanelt, A., Nickerson, R. C., & Kolbe, L. M. (2017). Discovering digital business models in traditional industries. *Journal of Business Strategy*, *38*(2), 41-51.

Ritter, T., & Lettl, C. (2018). The wider implications of business-model research. *Long range planning*, *51*(1), 1-8.

Singh, A., Madaan, G., Hr, S., & Kumar, A. (2023). Smart manufacturing systems: a futuristics roadmap towards application of industry 4.0 technologies. *International Journal of Computer Integrated Manufacturing*, *36*(3), 411-428.

SME Corporation Malaysia. (2024). SME Definitions. Retrieved from https://www.smecorp.gov.my/index.php/en/policies/2020-02-11-08-01-24/sme-definition

Still, K., Seppänen, M., Korhonen, H., Valkokari, K., Suominen, A., & Kumpulainen, M. (2017, July). Business model innovation of startups developing multisided digital platforms. In *2017 IEEE 19th Conference on Business Informatics (CBI)* (Vol. 2, pp. 70-75). IEEE.

Sabri, M. O., Al-Qawasmi, K., Odeh, M., & Aydin, M. E. (2023). Adoption of business model canvas in exploring digital business transformation. *Information Sciences Letters*, *12*(2), 845-854.

Teece, D. J. (2018). Business models and dynamic capabilities. *Long-range planning*, *51*(1), 40-49.

Teoh, M. F., Ahmad, N. H., Halim, H. A., & Ong, C. H. (2022). Digital Business Model Innovation and SMEs' Competitiveness: Insights from Malaysian SMEs. *Global Business and Management Research*, *14*(3s), 412-433.

Teoh, M. F., Ahmad, N. H., Abdul-Halim, H., & Kan, W. H. (2023). Digital business model innovation among small and medium-sized enterprises (SMEs). *Global Business and Organizational Excellence*, *42*(6), 5-18.

Westerman, G., Calméjane, C., Bonnet, D., Ferraris, P., & McAfee, A. (2011). Digital Transformation: A roadmap for billion-dollar organizations. *MIT Center for digital business and capgemini consulting*, *1*(1-68).

Zamani, S. Z. (2022). Small and Medium Enterprises (SMEs) facing an evolving technological era: a systematic literature review on the adoption of technologies in SMEs. *European Journal of Innovation Management*, *25*(6), 735-757.

Zhang, F., Yang, B., & Zhu, L. (2023). Digital technology usage, strategic flexibility, and business model innovation in traditional manufacturing firms: The moderating role of the institutional environment. *Technological forecasting and social change*, *194*, 122726.