

Digital Transformation Roadblocks: Challenges Face by Small and Medium Enterprises (SMEs) in Integrating Digital Technology

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Abstract

In an era defined by rapid digital advancement, Small and Medium Enterprises (SMEs) must embrace digital transformation to remain competitive in the marketplace. However, many SMEs face significant challenges when integrating digital technology into their business operations. This study aims to explore these challenges in-depth, with a particular focus on identifying the factors that hinder the digital transformation of Malaysian SMEs. By synthesizing existing knowledge through secondary data sources, such as journals and articles from online databases, this research provides a comprehensive understanding of the barriers faced by SMEs in adopting digital technology such as Internet of Things (IoT), cloud computing, big data, blockchain, and artificial intelligence (AI). The findings contribute valuable insights to SMEs, policymakers, and researchers, especially in developing countries, highlighting the importance of addressing these challenges to promote growth and sustainability in the digital era.

Keywords: Small and Medium-Sized Enterprises (SMEs), Digital Business, Technology Adoption, Digital Transformation, SME Challenges, Malaysia

Introduction

The digital revolution has fundamentally transformed the business environment, creating new challenges for Small and Medium Enterprises (SMEs) in Malaysia. To remain resilient and competitive in today's rapidly evolving economy, the adoption of digitalization across all aspects of their operations by SMEs is compulsory. Digital technologies such as the Internet of Things (IoT), cloud computing, big data, blockchain, and artificial intelligence (AI) are profoundly affecting business processes and activities. These technologies, along with online

platforms, social media platforms, digital communication tools, and digital marketing tools, offer SMEs powerful tools to facilitate and add value to their operation, reach new customers, and improve their overall efficiency. By integrating digital business strategies and internet-based technologies, SMEs can gain a competitive edge, streamline their processes, and improve their customer relationship management (CRM). This digital transformation is essential for SMEs to thrive in the modern business environment and adapt to the changing needs of consumers.

Based on a report from the Department of Statistics Malaysia (2022), Malaysia's Micro, Small, and Medium Enterprises (MSMEs) experienced a substantial GDP growth of 11.6%, surpassing the national GDP growth rate of 8.7%. MSMEs contributed significantly to the national economy, representing 38.4% of the GDP with a value addition of RM580.4 billion. Their export performance also showed impressive results, reaching RM144.5 billion, an increase of 16.3% from the previous year. This accounted for 10.5% of Malaysia's total exports. Furthermore, SMEs provide 48.2% of the country's total employment in 2022, up from 47.8% in 2021, highlighting their growing role in driving economic growth. For detailed information on the performance of SMEs in Malaysia, refer to Table 1.

Table 1

Performance of Small Medium Enterprises (SME's) 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 transformed industries, pushing businesses to improve traditional models and adopt technology approaches. Digitalization encompasses a variety of technologies and strategies that enable organizations to optimize processes, engage with customers, and remain competitive in today's rapidly evolving environment. This transformation can be facilitated by integrating technology and the Internet of Things (IoT) into operations. Recent advancements, such as the rise of mobile technology, data analytics, and social media, have significantly accelerated the digital shift in business operations. Consumers have access to vast amounts of information online to evaluate and compare their preferences for products and services. However, despite these advancements, many SMEs struggle to integrate digital technologies, as they face challenges in understanding and exploring the full potential of these tools (Zamani, 2022).

SMEs play a critical role in Malaysia's economy, contributing significantly to employment and GDP growth. However, one of the most pressing challenges faced by these businesses is how to increase their accessibility to digital tools and platforms, as well as expand their capabilities to create innovative products that can compete with foreign competitors (Cahyono, Nurcholis, & Nugroho, 2022). In the current global market, SMEs must adopt and integrate advanced technologies to remain competitive. However, many Malaysian SMEs are lagging in the adoption of Industry 4.0 technologies, which include automation, data analytics, and the Internet of Things (IoT). Previous research has highlighted that the level of

Industry 4.0 implementation in Malaysian manufacturing SMEs remains relatively low, limiting their ability to innovate and improve operational efficiencies (Abdulaziz et al., 2023).

The challenges SMEs face in going digital are numerous. These include a lack of education and training for employees, as well as a limited understanding of how to leverage digital tools effectively (Abdulaziz et al., 2023). According to a survey conducted by Müller, Buliga, & Voigt (2018), one of the biggest challenges that SMEs face is the high cost of investing in information technology (IT) infrastructures, machine parts, and, last but not least, the costs for technical training and IT personnel. Additionally, budget constraints also make it difficult for many SMEs to invest in the latest technologies infrastructure, or hire skilled talent (Abdulaziz et al., 2023). Moreover, the lack of experience and knowledge among workers creates a gap that prevents the effective use of these technologies, which hinders their potential to enhance business operations (Abdulaziz et al., 2023). Therefore, this study aims to explore these challenges in-depth, focusing on the factors that limit the digital transformation of Malaysian SMEs. It seeks to provide insights into the key areas where improvements are needed, such as education, funding, and technology adoption, to better support SMEs in their journey toward digitalization. Addressing these challenges will be crucial for ensuring that Malaysian SMEs can thrive in an increasingly competitive and technology-driven global market.

The next section reviews the relevant literature related to SMEs and technology in the business context. The second section describes the methodology and procedure used for the present study. Further ahead, the next section discusses challenges for SMEs in Malaysia in operating their business using digital technologies. Finally, the article concludes with the implications, limitations, and future directions.

Literature Review

Small and Medium Enterprises (SMEs) in Malaysia

The definition of small and medium-sized enterprises (SMEs) in Malaysia was established during the 14th National Skill Development Corporation (NSDC) Meeting in July 2013. This definition applies across all sectors, including manufacturing, services, mining and quarrying, agriculture and construction. To classify a business as an SME, it must meet specific criteria related to qualifying requirements, the type of establishment, and its shareholding structure. All SMEs need to be registered with Suruhanjaya Syarikat Malaysia (SSM) or other equivalent bodies. The criteria for defining SMEs are based on sales turnover and the number of full-time employees. For the manufacturing sector, SMEs are defined as businesses with a sales turnover not exceeding RM50 million or with no more than 200 full-time employees. For the services and other sectors, SMEs are defined as businesses with a sales turnover not exceeding RM20 million or with no more than 75 full-time employees. The detailed definitions for SMEs are provided in the table below.

Table 2

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

Category	Manufacturing	Service and other sectors
Medium	Sales turnover: RM15 mil ≤ RM50 mil <u>OR</u> Employee: From 75 ≤ 200	Sales turnover: RM3 mil ≤ RM20 mil <u>OR</u> Employee: From 30 ≤ 200
Small	Sales turnover: RM300,000 < RM15 mil <u>OR</u> Employee: From 5 < 75	Sales turnover: RM300,000 < RM3 mil <u>OR</u> Employee: From 5 < 30

Source: SME Corporation Malaysia

Integrating Digital Technology in Business

Digitization involves converting analog and noisy information into digital data (Brennen & Kreiss, 2016). Digitalization is closely linked with innovation, efficiency, and adaptability in today's business environment. According to Bloching et al. (2015), digital transformation encompasses the integration of various business sectors and the adaptation of stakeholders to meet the demands of the digital economy. As a transformative force, digitalization introduces new internet-based technologies that impact all industries. It has progressed from a mere technological shift to a phenomenon capable of influencing all types of organizations. In a business context, digitalization refers to the integration of digital technologies and strategies across various facets of an organization to boost efficiency, productivity, and competitiveness.

Viswanathan and Telukdarie (2021), along with Bansal (2019), have identified five digital trends that are likely to shape the future SMEs namely; "(1) Adoption of cloud technology, (2) businesses tend to operate online, (3) Social media will reign the business operations of SMEs (4) usage of Chatbots will be crucial and (5) businesses are adjusting according to millennials". Additionally, digitization has proven beneficial for SMEs, particularly during the COVID-19 crisis, by helping them avoid a complete economic halt (Khai et al., 2020). Many SMEs demonstrated both the willingness and ability to adopt digital technologies, which enabled them to survive during challenging times.

Adopting digitalization is essential for maintaining long-term sustainability and staying competitive in the marketplace. Digital technologies can drive inclusive and sustainable growth by fostering innovation, improving efficiency, and enhancing the quality of products or services (Rachinger et al., 2018). Additionally, digitalization lowers operating costs, enhances efficiency, and enables the creation of new business models and revenue streams. It also improves the customer experience by offering better service and facilitating communication, thereby fostering stronger relationships with clients. Furthermore, it strengthens and elevates the company's brand.

Research Methodology

The data for this research is exclusively derived from secondary sources, collected from a diverse range of materials, including books, newspapers, academic journals, research papers, case studies, and online databases such as Sage, Science Direct, Springer Link, and Emerald. The initial key terms utilized in the data collection process include small and medium

enterprises (SMEs), digital technology, and digital business. The focus of this research is to explore and understand the potential challenges encountered by SMEs in Malaysia when adopting and using digital technology in their business operations.

Discussion

This part focuses on addressing the research objectives: to explore the challenges faced by Small and Medium Enterprises (SMEs) in Malaysia while running their company utilizing digital technology.

Challenges for SMEs in Malaysia in Operating their Business using Digital Technologies

Businesses have a range of issues regarding digitization, including limited resources, insufficient technical knowledge and skills, difficulty maintaining dedication and discipline, and limited access to finance. This section examines the challenges faced by small and medium-sized enterprises (SMEs) in Malaysia when it comes to embracing digitalization.

Limited Access to Digital Infrastructure

Insufficient and unreliable internet connectivity might impede the capacity of small and medium-sized enterprises (SMEs) to properly embrace and utilize digital technology. In addition, regarding digital tools and platforms, there is a lack of understanding and availability of suitable digital tools that are adapted to the requirements of SMEs. A survey by Müller et al. (2018) highlights that one of the main challenges small and medium-sized enterprises (SMEs) encounter is the substantial cost of investing in IT infrastructure, machinery, and expenses related to technical training. Upgrading or replacing outdated IT infrastructure and systems can be costly, posing a challenge for businesses across the board.

In addition, SMEs are at a higher risk of cyber-attacks since they have insufficient resources to implement strong cybersecurity measures. The security and privacy of consumer data is a significant concern. A study by Ab Rani et al., (2022) revealed that a significant number of SMEs encounter the challenges of insufficient resources, particularly financial limitations, when it comes to implementing digital businesses. These challenges include difficulties in utilizing internet data effectively, inadequate connectivity for promoting business digitally, and a lack of technologically skilled employees. They also face a lack of sufficient resources for digital connectivity with customers and suppliers, primarily due to inadequate communication infrastructure. Furthermore, they struggle with remunerating e-commerce proficient personnel due to limited company revenues.

Lack of Knowledge and Skills

A crucial factor in driving digital transformation is having a skilled digital workforce. Many countries face challenges in this area, as evidenced by 48% of Small and medium-sized enterprises (SMEs) struggling with a lack of technology-related skills (Yuen, 2023). Transforming SMEs digitally requires restructuring and redesigning management activities such as operations, sales, and marketing processes to leverage the full potential of digitalization. SMEs encounter the obstacle of insufficient knowledge and skills. Their understanding of the imperativeness of digital platforms in business is limited (Ab Rani et al., 2022). Many SME employees lack sufficient digital tools, platforms, and knowledge of processes. This results in inefficient use or underutilization of digital technologies. In addition,

employees may not be familiar with digital tools such as software, systems, and data analytics platforms.

Skill gaps may exist among SME employees, resulting in a lack of proficiency in using new technology due to insufficient digital skills and expertise. This is due to the limited access to educational resources and training programs in enhancing digital literacy. These are the main challenges for most entrepreneurs in small industries due to a lack of expertise in handling technology because they are familiar with producing a product through traditional methods and not through the use of modern technology (Leu, & Masri, 2019). Insufficient knowledge of technology causes digital management techniques to be inefficient. In addition, the use of modern technology that requires skilled manpower to operate the technology, such as machines, will force entrepreneurs to hire skilled workers who can operate the machines. The lack of skills and knowledge about digital tools and processes can slow the digital transformation process. Thus, SMES need to overcome these challenges and fully capitalize on the benefits of digitalization.

Management Commitment and Change Management

It is pivotal for the organization to have a strong dedication from management towards acquiring, implementing, and advancing digitization technology. The effective deployment of Internet technology requires a strong commitment and support from top management. The involvement of senior executives in facilitating and backing organizations throughout the process of transitioning to digital business is of utmost importance (Larjovuori et al., 2018). The significance of leadership in the change management process is underscored by the fact that implementing change necessitates the establishment of a novel system and then embedding the new methodologies. Management must oversee employee reactions to technology developments and formulate suitable strategies to obtain, deploy, and manage them. Resistance to change refers to the reluctance shown by workers and management to embrace new technology and alter the status quo of the company's practices. The existing negative organizational culture that neither supports nor facilitates the process of digital transformation needs immediate revamp.

Financial Constraints

The primary challenge faced by small and medium-sized enterprises (SMEs) is obtaining funding. A significant number of SMEs in Malaysia, particularly micro-enterprises, have difficulties in securing bank funding. Often, this is a result of having a low credit score, a history of financial mismanagement, or an unsustainable company plan. According to Abdulaziz et al., (2023), the initial stage of implementing digital technology comes with various cost implications, including professional consulting, high-performance communication, and IT systems, advanced technologies across all organizational levels, infrastructure, and a highly skilled workforce. The majority of SMEs lack comprehensive financial records, are unable to provide a compelling business plan, and do not possess the necessary collateral as stipulated by financing institutions. Ab Rani et al., (2022) found that some SMEs use personal accounts for customer interactions.

According to Hamidi et al., (2018), one of the challenges faced by firms in implementing technology in business is a lack of financing for its maintenance. An investment in technology may be a substantial barrier because of the high initial expenses associated with

the purchase of hardware, software, and other components of technical resources. Besides that, the ongoing expenditures of maintaining and improving digital systems may place a burden on the finances of SMEs, who have limited financial resources.

Lack of Access to the Market

SMEs are confronted with the subsequent task of entering and establishing a presence in both domestic and international markets. Intense competition from both local and international firms that are more digitally advanced. Producers of SMEs in the local market face fierce competition from bigger, established, and more powerful enterprises. Furthermore, there is a prevailing notion that goods and services offered by SMEs are of inferior quality (Mohamad et al., 2021). As a consequence, SME goods and services face restricted entry to government procurement and major enterprises. Simultaneously, SMEs have constraints in terms of their limited capacity and resources, which hinder their ability to deliver significant orders within a certain timeframe. Furthermore, SMEs exhibit a lower degree of emphasis on marketing and branding initiatives. This may be attributed to the insufficient understanding of the significance of marketing and branding strategies among some small and medium-sized enterprises (Kumar & Ayedee, 2021). However, SMEs that recognize the significance of marketing and branding strategies often fail to carry out these operations owing to their restricted and inadequate resources. Business rules and bureaucracy provide substantial obstacles to the expansion of SMEs since the administrative procedures and obligations may increase the expenses associated with doing business.

Conclusion

This study has revealed several perils that would jeopardize the digitalization of SMEs in Malaysia. These challenges revolve around limited access to digital infrastructures, a lack of knowledge and skills among SME owners and employees, management commitment issues, financial constraints, market access barriers, and a shortage of skilled employees. Subduing these challenges is imperative for SMEs to retain a competitive edge and be sustainable in the digital age. To address these issues, the government and relevant actors play vital roles in providing support, training, and resources to SMEs. This includes investing in digital infrastructure, offering affordable internet access, developing customs training programs, and providing financial incentives for digital adoption.

Furthermore, SMEs themselves must recognize the importance of digitalization and take proactive steps to address these challenges. This involves investing in digital skills development, adopting a digital mindset, and seeking assistance from experts or consultants. By working together, SMEs, government agencies, and industry stakeholders can create an enabling environment that fosters digital transformation and helps SMEs thrive in the digital economy.

Future research can delve deeper into specific challenges, such as exploring the impact of government policies on SME digitalization, conducting case studies of successful SME digital transformations, or examining the role of technology adoption frameworks in guiding SME digitization efforts. Future researchers can also adopt empirical research, such as qualitative, quantitative, or mixed methods, to support or repudiate the findings of this paper. Various research methods can also be tailored to suit the populations' parameters.

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