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Digital Business Model Innovation and SMEs' Competitiveness: Insights from Malaysian SMEs

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Abstract

Purpose: Digital business model innovation (DBMI) has been considered an important mechanism to raise business competitiveness. Anchored in the dynamic capabilities theory, upper echelon theory, and institutional theory, this study investigates the antecedents and outcome of digital business model innovation (DBMI).

Design/ methodology/ approach: Literature review was undertaken and the proposed research model were verified via interviews. The data were collected using semi-structured interviews with top managers and business owners from four Malaysian SMEs. The data was organized into four themes.

Findings: The four elements of DBMI were discussed with the top managers and business owners. The interview findings indicate that entrepreneurial leadership and digital capability are the antecedents of DBMI while SMEs' competitiveness serves as an outcome of DBMI. Interestingly, there is minor discrepancy in the relationship between government support and DBMI adoption. Due to the COVID-19 pandemic, respondent B claimed that government financial support is crucial for business sustainability instead of DBMI adoption.

Originality/ value: Research studies on DBMI in Malaysia are limited. The originality of this study lies in the exploration of DBMI adoption in the real-life business environment and the insights it provides to practitioners that struggling to adopt DBMI. Although the findings cannot be generalized, it contributes to the knowledge of DBMI to SMEs, policymakers, and scholars in emerging economies.

Keywords: Digital Business Model Innovation (DBMI), Entrepreneurial Leadership, Digital Capability, Government Support, SMEs' Competitiveness

Introduction

Digitalization exerts significant changes in all businesses. It increases the number of new digital businesses, particularly SMEs, with increased capacity to compete more intensely with existing players in the global marketplace. In fact, business model has been seen as the secret weapon of all successful SMEs. This is supported by several case studies on the topic of business model (Nunes & Russo, 2019). Globalization, rapid technological and market changes lead to changes in a business model (Wirtz, 2019). SMEs can employ digital technologies to innovate a digital business model (Bouncken et al., 2019). This leads to digital business model innovation (DBMI) that emphasizes the innovation on value creation, value proposition, value delivery, and value capture (Clauss et al., 2019; Gebauer et al., 2020; Panda, 2019).

Digital businesses are those SMEs that incorporate digital technologies such as cloud computing, big data analytics and social networks sites (Facebook, Twitter) in their business model to manage internal and external operations (Ansong & Boateng, 2019). For example, Pott Glasses in Malaysia incorporates augmented reality (AR) to allow customers to enjoy virtual try-on services whereby customers can preview their appearance with the chosen spectacles through the Safari or Google Chrome web browsers, then proceed to online vision test (Lim, 2020; Pott Glasses, 2020). SMEs can deploy interactive websites to market their product/services, build relationships and serve customers directly, bypassing the intermediary to mitigate costs and optimize operational efficiency (Morabito, 2014).

Few Malaysian SMEs have adopted DBMI, rendering its presence in an infancy stage (Menon & Gan, 2020). The findings from SME Corporation Malaysia & Huawei Technologies (M) Sdn Bhd (2018) highlight that 23% of Malaysian SMEs plan to adopt an e-commerce business model, while 33% of Malaysian SMEs do not intend to venture into e-commerce due to the challenges of managing both offline and online business and higher workloads for their employees. Failure of SMEs to manage their business digitally will reduce customer satisfaction (Bouncken et al., 2019). SMEs have no idea of the effective methods on adopting DBMI, and it could also prove challenging to convince employees to use the newly integrated system optimally (Sehlin et al., 2019). Prior studies acknowledge the importance of future research to investigate the antecedent (Parida et al., 2019) and outcome of DBMI (Verhoef & Bijmolt, 2019). Against this backdrop, this study poses the research question: "What drives SMEs to adopt DBMI and what is the outcome of DBMI?"

There are studies that conceptualized the importance of business model and business model innovation to raise business competitiveness and performance (Hamelink & Opdenakker, 2019; Osterwalder & Pigneur, 2010; Pucihar et al., 2019; Remane et al., 2017; Teece, 2018). However, literatures on DBMI is relatively scarce. Prior literatures investigated the influence of entrepreneurial leadership on innovation process and business future performance (Sawaean & Ali, 2020), exploitative and exploratory innovation (Huang et al., 2014), business model (Freeman, 2014; Simba & Thai, 2019) and digital business model (Martín-Peña et al., 2018). Digital capability has been recognized as a determinant of DBMI adoption, but the studies were conducted in other countries, such as Europe, United States, Japan, China (Bonnet & Westerman, 2015; Lenka et al., 2017; Wu & Gereffi, 2019) and there are inadequate studies conducted in Malaysia, this gap is substantial. Government support significantly influences the adoption of mobile commerce (m-commerce) business model (Chau et al., 2020), adoption of e-commerce business model (Lim et al., 2013, 2016; Scupola, 2003), digital business model (Boojihawon & Ngoasong, 2018).

Based on dynamic capabilities theory, Miles (2012) and Teece et al. (1997) posit that organization must rearrange its internal resources and capabilities to achieve competitive advantage in the dynamic business setting. This theory was applied commonly in business model innovation and DBMI literature (Parida et al., 2019; Rachinger et al., 2018; Teece, 2018). Digital capability is the dynamic capability that supports the organization to accelerate the innovation process and offers creative digital solutions that are adaptable to the market trends (Khin & Ho, 2019). Under upper echelon theory (UET), the characteristic, behaviour and the communication of the top management with external parties can influence the strategic decision (Hambrick & Mason, 1984; Neely et al., 2020). When SMEs face poor performance in digitalized environments, entrepreneurial leaders with unique attributes can digitalize existing business models to exploit entrepreneurial opportunities and fulfil customers' digital demands (Harrison et al., 2016; Renko et al., 2017; Schoemaker et al., 2018). The institutional theory states the interplay between government support and organizational action (North, 1990; Shu et al., 2019), such as DBMI adoption. Based on the prior literature, the present study proposes to integrate three theories to examine the antecedents (entrepreneurial leadership, digital capability, government support) and outcome (SMEs' competitiveness) of DBMI in the context of Malaysian SMEs.

Literature Review

Theoretical Background

Dynamic capabilities theory is the extension of resource-based view (RBV) theory (Gupta et al., 2020). Unlike dynamic capabilities theory which is applicable in the digital and dynamic context (Behl, 2020), RBV theory has been criticized that mainly focuses on static resources and is not able to explain how organizations using their unique resources and capabilities in the highly dynamic environment to attain competitive advantage (Gupta et al., 2020; Kraaijenbrink et al., 2010). DBMI and digital capability that can dynamically address external changes are considered as dynamic capabilities of the organization. It can be illustrated via innovation of a business model and reconfiguration of resources to adopt DBMI to achieve higher profits (Miles, 2012; Parida et al., 2019). To ensure DBMI adoption can achieve long-term success, an organization needs to recognize customer demands and value chain, deliver the right product in a timely manner and with the effective cost (Rachinger et al., 2018; Teece, 2018). Digital capability support organization to develop new products and processes to respond promptly in a rapidly changing marketplace (Khin & Ho, 2019; Teece et al., 1997; Teece & Pisano, 1994). An organization with strong digital capability must be able to rearrange its resources to address uncertainties and rapid changes (Teece et al., 1997; Zhou & Wu, 2010). Therefore, grounded on this theory, the present study conceptualizes the relationship between digital capability and DBMI, DBMI with SMEs' competitiveness.

Grounded on UET, the entrepreneurial skills of the top managers to sense and exploit new opportunities leads to new business processes, new products and services, and subsequently innovating the digital business model (Guo et al., 2013). Entrepreneurial leader who is visionary can elicit commitment from followers towards achieving the vision, implement value creation innovation to discover and exploit potential opportunities (Gupta et al., 2004; Sarabi et al., 2020). In Tunisian high-tech SMEs, entrepreneurial CEOs are inclined for projects carries high risks affects open innovation adoption positively (Najar & Dhaouadi, 2020). With the concept derived from UET, entrepreneurial leaders in SMEs with the characteristics such as creativity, risk-taking, visionary and passionate able to influence DBMI adoption (Carsrud et al., 2018; Schoemaker et al., 2018). Based on UET, this study explains the influence of entrepreneurial leadership on DBMI.

The institutional theory explains how external pressures affect organizational action and decisions (Hirsch, 1975). The direct action of government is vital to create a supportive environment for the organization to implement DBMI (Bruton et al., 2010). Financial incentives, supportive programs, direct investment are the various forms of government support in developing countries to facilitate an organization to assimilate cloud computing (Wang et al., 2019). From institutional perspective, consultation and legal support of government impacting the investment project of digital universities (Grabar et al., 2019). Based on institutional theory, government support in stimulating digital technology development influence the adoption of e-commerce business model in developing countries (Lim et al., 2016; Zhai & Liu, 2013). Subsidies provided by the government influence the organizational activities such as importing technology-related products to support innovation activities (Qian et al., 2018). It reflected that this theory is suitable to address how government support shape DBMI adoption among SMEs in the digital landscape.

Digital Business Model Innovation (DBMI)

A business model proposes and navigates approaches to optimizing an organization's resources to create and deliver value to customers, capture higher revenue and profits (Teece, 2018). Business model innovation refers to unique changes in a business model's components (Faghih et al., 2018). A business model should integrate digital technologies to herald notable changes in a business (Remane et al., 2017; Veit et al., 2014). This is known as digital business model innovation, in which digital technologies were incorporated to implement value creation innovation, value capture innovation, value proposition innovation and value delivery innovation (Clauss et al., 2019; Panda, 2019; Still et al., 2017).

Value Creation Innovation

Value creation innovation refers the ability to use new capabilities, partnerships, digital technology and efficient value-added processes to create value for the targeted segments (Clauss et al., 2019; Still et al., 2017). Value-creating innovation hinges on using digital technology to cooperate with cloud partners to access data streams on customer buying patterns and aid businesses in providing optimal services (Blaschke et al., 2017). Dasí et al. (2017) explained that Telenor configures new resources such as new software, digital and analytical platforms with a user-friendly payment system to support new digital services, develop good partnership relationships, attract new customers and provide better services to customers. This is supported by research on European SMEs that information technology, big data and social media were employed to innovate business model digitally and create values to customers (Bouwman et al., 2019).

Value Proposition Innovation

Value proposition innovation includes using digital technology to develop new product/service portfolio and customer relationships (Clauss et al., 2019; Panda, 2019; Still et al., 2017). In the automotive and media industry, its value proposition is to offer digital products/services and satisfy customers' heterogeneous needs (Rachinger et al., 2018). The new value proposition of Telenor is offering 5G mobile broadband, new digital services (e-sim) and providing application programming interface (API) to customers (Dasí et al., 2017). In the same vein, digital enterprise in Cameroon with scarce resources use digital platforms to offer e-sales of tour packages to tourists (Boojihawon & Ngoasong, 2018). Wikström & Ellonen (2012) outline some of the digital contents for both Fashion magazine and Business Daily are contributed by related bloggers and customers, whilst discussion forums and blogs have been used to interact and build a closer relationship with customers.

Value Delivery Innovation

Value delivery innovation associates with employing digital technology by SMEs to target on new customer segments and new distribution channels to deliver values to customers (Baber et al., 2019; Clauss et al., 2019; Panda, 2019; Rayna & Striukova, 2014; Still et al., 2017). To deliver superior value to customers, SMEs can employ predictive maintenance techniques, smart products to gather reliable information from customers, and integrated partnerships (Ibarra et al., 2018). Phone accessories producers can use virtual 3D printing services such as Cubify Cloud and Ponoko to distribute customized products to customers, and small businesses can adopt 3D printing to target niche markets at lower production costs (Rayna & Striukova, 2014). The multiple case studies on Japanese high-tech SMEs revealed that new value delivery via digital platforms includes replacing physical distribution with indirect distribution channels, creating new digital platforms, using e-communication to improve physical distribution, and multihoming products virtually to expedite the product delivery (Baber et al., 2019).

Value Capture Innovation

Value capture innovation delineates the new revenue streams from an effective cost structure (Clauss et al., 2019; Still et al., 2017) by using digital technology. SMEs that spend substantial initial capital investment on sophisticated digital technologies and software need to carry out a risk assessment to ensure the outcome of their capital investment outweighs the cost (Parida et al., 2019). Scandinavian magazines and newspapers have flexible cost structures due to the digital contents contributed by freelance bloggers, lower cost to acquire the content, and deal with customer issues face-to-face as they can get instant replies from the employees and other bloggers via the network/website (Wikström & Ellonen, 2012). The revenue stream of Fashion magazines and Business Daily are from online banners ads and online services; when the blogger network and discussion forums improve their website's traffic, it will result in higher revenue (Wikström & Ellonen, 2012). Parida et al. (2019) argue that a customized pricing model that gives customers the freedom to subscribe to fixed or flexible packages can improve the business revenues.

Antecedents of DBMI

Entrepreneurial Leadership

Entrepreneurial leaders motivate followers by using empowerment, let them feel that they are part of the organization and have appropriate control over future business innovation activities and success, which can eventually achieve an organization's vision (Nor-Aishah et al., 2020; Renko et al., 2015; Renko, 2017). Entrepreneurial leaders are confident, passionate, visionary, and inspiring and influence DBMI in volatile business environments (Carsrud et al., 2018; Schoemaker et al., 2018). As stated by Carsrud et al., (2018), leaders of new ventures influence the strategy of an organization by influencing and inspiring followers to perform excellently to achieve predetermined goals, continuously recognize and exploit entrepreneurial opportunities, pursue the organizational vision with risky, highly innovative and creative strategies. Volery & Mueller (2018) argue that entrepreneurial leaders play an essential role in cultivating the innovation culture and engage followers in value creation innovation. This viewpoint is supported by Freeman (2014), who posited that entrepreneurial leadership is a process that innovates, validates and implements the new business model with the interest of creating new value to stakeholders and capturing value from them. Simba and Thai (2019) conclude that the entrepreneurial leadership of micro small and medium enterprise (MSME) influences a useful business model. Therefore, this study postulates that:

Proposition 1: Entrepreneurial leadership has positive relationship with digital business model innovation.

Digital Capability

Digital capability is associated with an organization's capabilities to manage its digital technologies (Khin & Ho, 2019). Westerman et al. (2012) delineate the digital capability that adapts to dynamic changes can support organizations to innovate operational processes and business models digitally to transform customer experiences and amplify their competitiveness. Digital capability cultivates innovation in the value creation and delivery of an organization (Grover & Kohli, 2012). Investing in an organization's digital capabilities can optimize new value co-creation with customers (Lenka et al., 2017). Martín-Peña et al. (2018) and Parida et al. (2019) assert that organizations must develop and forge new digital capabilities when innovating a digital business model. Da Silva Freitas et al. (2017) claims that responsive and agile digital capability is the driver of digital business models. Organizations with deficient digital capabilities are unable to develop DBMI (Martín-Peña et al., 2018). Digital capabilities encapsulate the utilization of digital technologies and big data analytics to innovate digital activities, reduce resource consumption, better integration with employees, suppliers, and customer, new production system to monitor production in various locations and real-time feedback (Queiroz et al., 2019). Digital capabilities are the prerequisite of a successful digital business model to create incredible customer experiences, new digital contents and platforms (Weill & Woerner, 2013).

Proposition 2: Digital capability has positive relationship with digital business model innovation.

Government Support

Government support entails various financial and non-financial assistance to stimulate SMEs to adopt DBMI (Mohtaramzadeh et al., 2018). Government support associated with financial assistance, policy, technical workshops can promote the utilization of digital technology in business operations (S. C. Lim et al., 2016) to achieve economies of scale, higher revenue streams, more effective communication with partners, and deliver new digital goods to global customers. The government's technological and financial support can facilitate the mobile commerce (m-commerce) business model among Vietnamese SMEs (Chau et al., 2020). Government support takes on various forms such as grants, digital infrastructure, and enforce cyber laws to drive the e-commerce business model's adoption among SMEs in Penang (S. C. Lim et al., 2013). Malaysia's government helps SMEs improve their value creation, value proposition, value delivery, and value capture through SME Technology Transformation Fund and Smart Automation grant (New Straits Times, 2020). Digital businesses in Cameroon require government support to innovate the elements of a digital business model (Boojihawon & Ngoasong, 2018). In India, government support and corporations with substantial financial resources could support farmers in employing digital technologies such as smart agriculture sensors, IoT-enabled weeding robots, and integrated crop management to innovate existing business models digitally (Suresh & Venkateswara Prasad, 2019).

Proposition 3: Government support has positive relationship with digital business model innovation.

Outcome of DBMI: SMEs' Competitiveness

Organizational competitiveness refers to its market performance and how well it performs in the marketplace compared to the leading competitors (Jiang et al., 2016). It can be represented by its ability to create new and innovative products, utilize resources, particularly its intangible

assets optimally to earn profit in the medium and long run (Battaglia et al., 2014). SMEs' competitiveness can be influenced by value capture innovation, value creation innovation such as using new digital technologies to improve the production process, and value proposition innovation by offering new value-added products and post-sale services (Bostan et al., 2019). When performing value creation innovation, organizations should strengthen their product and service quality to enhance customer satisfaction and loyalty, eventually raising SMEs' competitiveness in the textile industry (Taçoğlu et al., 2019). SMEs should employ new digital technologies and automation to simplify the production processes, using efficient distribution channels to target new customer segments to stimulate customer purchases on new products, establish good relationships with them, and improve its revenue streams to advance SMEs' competitiveness (Ahmedova, 2015). DBMI, in the form of the freemium model, customer experiences, and involvement can raise a business's competitiveness (Oestreicher-Singer & Zalmanson, 2013). In the context of DBMI, product contents tailored to customers' unmet needs, superior customer experiences, and user-friendly digital platforms are the crucial determinants of competitive advantage (Woerner, 2019). DBMI, which is hard to imitate and is embedded with intangible elements, is a prominent source of competitive advantage (Phillip, 2020).

Proposition 4: Digital business model innovation has positive relationship with SMEs' competitiveness.

Proposed Research Model

Based on prior literature, the present study proposes a research model in Figure 1.

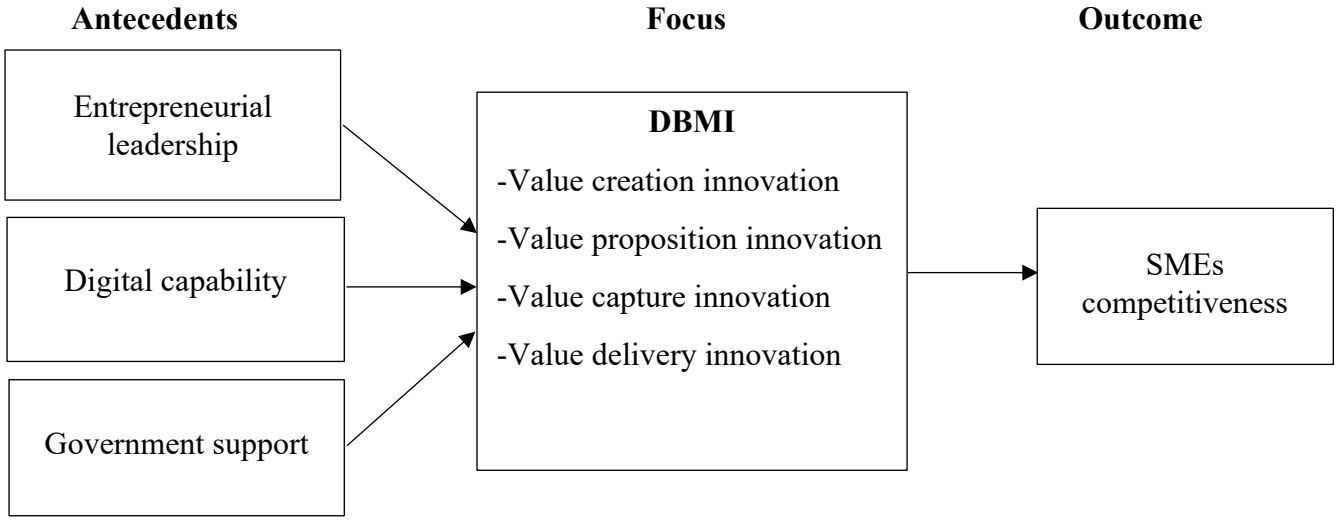

Figure 1: Proposed research model

Methodology

To examine the proposed research model, semi-structured interviews were conducted among four Malaysian SMEs between September and October 2020 to obtain data on the real-life business environment. On average, the interview duration is from 60 to 110 minutes. The respondents were labelled as respondent A, B, C, and D. Table 1 indicates the company profile of the study's SMEs. Although the sample has only four SMEs, it is comparable to other similar studies on the digital business model. For example, Ylijoki et al. (2019) investigate the mediating role of innovation capabilities on the digital business model in three different big data organizations, Corsaro (2018) conducted two case studies (Salesforce.com and 3DiTALY) to examine how digitalization dramatically changing the business operations and Dasi et al.

(2017) analyzed the digital transformation of a Telco business (Telenor) using longitudinal study. Therefore, the sample size of this study is considered acceptable.

SMEs in this context is crucial a unit of the analysis as SMEs play a vital role in the nation's economic performance. The respondents were selected based on the purposive sampling method. Given that DBMI is a relatively new concept, and SMEs are in the midst to adopt DBMI. Therefore, the business owners/ top management/ decision-makers of SMEs that adopted DBMI are the key informants who can contribute real-life insights to this study. Upon receiving permission from SMEs, a cover letter and the related interview questions were emailed to them two weeks prior to the interview session, ensuring the anonymity and confidentiality of the interviewees' identity. Therefore, interviewees can provide in-depth inputs to this study.

Thematic analysis was incorporated in this qualitative research. The respondents were required to provide insights based on several themes. The main themes are 1) their perception and understanding of DBMI, 2) the challenges faced by the organization during the DBMI adoption process, 3) opinion and insights on the antecedents (entrepreneurial leadership, digital capability, government support) contributing to DBMI adoption in the organization, and 4) how the adoption of DBMI enhanced the organization's competitiveness?

Table 1: Company profile

SMEs / respondents	A	B	C	D
Year founded	2010	1995	2014	2013
Industry	Manufacturing	Manufacturing	Service	Service
Firm size	Small	Medium	Small	Small
Number of employees	7	350	7	5
Annual sales turnover	More than RM300 000	Not exceeding RM50 million	Not exceeding RM3 million	Not exceeding RM3 million
Interviewee's position	General manager	Managing director	Director	Business owner
Adopt DBMI	✓	✓	✓	✓

Interview Findings

Company Background

Respondents A and B in the manufacturing sector operated their businesses for more than ten years. Respondents C and D in the service sector served the industry for more than six years. Respondent A has a small business that manufactures and sells baby products in physical stores and virtual platforms. It has seven employees and an annual sales turnover of more than RM300,000. Respondent B is a medium-sized original equipment manufacturer (OEM) that manufactures rubber-related products for foreign large retailers. It has 350 employees and an annual sales turnover not exceeding RM50 million. In the service sector, respondents C and D have small-sized businesses with sales turnover within the range of RM 300,000 and not exceeding RM3 million. Respondent C is a trading company selling industrial assembly technology and machines. He has seven employees. Meanwhile, respondent D is the international agent for Taobao, Alibaba, and Tmall, helping customers buy goods from China and deliver them. He has five employees.

Theme 1: Digital Business Model Innovation (DBMI)

All respondents (A-D) have the same thoughts that DBMI is the new term for them. Respondents A, C and D explained that they regularly review its existing business model and seeking for innovative ways to revamp it digitally to satisfy customer requirements and respond proactively towards Industry 4.0. On the other hand, respondent B stated that he is not sure what the organization is doing now can be referred to "DBMI" or not. The following section unravels how does SME A-D adopts DBMI.

Value Creation Innovation

Value creation innovation can be implemented with new capabilities of employees, when they have the required knowledge, they are able to apply the novel and efficient approach to perform the tasks. As stated by respondent A-D, they develop employees' new capabilities through training. Respondents D explains that the business practices job specialization. On-the-job training was provided in the first two weeks after the employees were recruited and when the business employ a new software/ system.

All respondents employ new digital technologies/systems to optimize business operations. To have better human resource management, respondents A and B stated that a new thumbprint system was deployed to record employees' attendance and working hours. In terms of general administration, a 'AutoCount' system and SQL system were incorporated by SME A and B respectively to manage inventory, raw materials, issue purchase orders, invoices, and the accounting system. In contrast, as highlighted by respondent D, a new customized digital system was used to manage orders, shipments, and tracking systems. The online inventory system of the business partners helps the business to manage goods at the Guangzhou warehouse. To enhance production processes, respondent B stated that the business employed new digital sensors to control the machines, a new digital printing machine at higher quality to print the customized design on rubber-related products based on large retailers' orders, a new automated machine to do the finishing such as rolling and packaging. New digital technology to support automated machines was employed by SME C. To become more efficient, they will upload pre-recorded videos to YouTube instead of physical demonstrations, and the business always looking for new approaches to simplify internal processes. As posited by respondent D: "We use email to correspond with customers on product specifications. Aliwangwang (instant messaging platform) was used to deal with suppliers and receive their replies". For payment gateway, the point of sales (POS) system was incorporated by SME B, meanwhile, for SME D, customers can pay the staff through PayPal using a credit card, and the staff uses Alipay to make payments to relevant suppliers. It was observed that each SME using diverse digital technologies/systems to create values based on business's needs and nature.

Except for SME A, SME B, C, and D include new partnerships as part of their value creation innovation/activities. New partnerships with large retailers in foreign country (SME B), new partners from the US, Germany, Malaysia, and Southeast Asia (SME C), partners include ABX, Skynet, Gdex, etc (SME D). Good synergy with the new partners with strong and unique resources can improve value creation innovation of SMEs.

Value Proposition Innovation

Due to rapid changes of external factors, the same products and services might not able to satisfy new demands, provide fresh/superior experiences to customers. It was observed that all SMEs offer new products and services, establish closer relationships with their customers by using digital technologies. As illustrated by respondent A: "Traditionally, we manufacture and sell the finest quality baby products. Now, we are using online platform to offer professional

customer service, speedy and reliable product delivery, establish strong trust, credibility, and profitable relationships with customers. The business provides an honest and straightforward return service to customers and prompt replies to customer questions and feedback".

Respondent B delineated that rubber technologists always perform research and development (R&D). This business has a diversified product range and evolved from manufacturing niche products to mass customized products using high quality, safe, and environmentally friendly natural rubbers. Furthermore, they practice a just-in-time (JIT) inventory system with large retailers and suppliers. The innovative and customized product based on a customer's latest needs at competitive prices can satisfy customer demands and establish profitable relationships with large retailers. Also, they offer virtual and physical support services to large retailers.

Another perspective by respondent C in service sector: "We offer new and innovative digital products, solutions, and ideas to customers. We provide on-site testing of the digital machines, offer professional and technical advice, free trials on the assembly machines and tools, virtual support, and demonstrations to enhance customers' production quality (visiting them if necessary)".

Lastly, respondent D stated that: "The business's value proposition innovation is helping customers buy products from Taobao, Alibaba, and Tmall via online platform. The business uses online advertisements such as Google Ads, Facebook ads, search engine optimization to stimulate new and repeat purchases and remind customers of our services".

Value Delivery Innovation

In view of resource constraints of SME A, only SME B, C, D targeting on new market segments by using basic digital technologies. As explained by respondent B, the business targeting new large retailers (customers) in the EU, USA, and receiving inquiries from both email and website. Respondent C explained that, via virtual exhibition, the business can target on new customers manufacturing high-end products in Southeast Asia, especially new projects by private businesses. Interestingly, he highlighted two types of customers in virtual exhibition: firstly, customers who need more clarification to confirm some details and have a basic idea on digital machines; secondly, the customers with limited knowledge on digital devices who want to learn, seeking some relevant devices for the new venture. He stressed that it would be beneficial for the business to target on those potential customers only. As mentioned by respondent D, the business targets new customers in Malaysia and Singapore by using social media.

It was discovered that websites, social media (WhatsApp, Facebook), online platforms, email were commonly employed by all SMEs to ease customers to complete purchases and for efficient communication purposes. Other than this, SME C using Google Ads, YouTube, virtual exhibitions (due to COVID-19) to communicate and deliver values to customers. Respondent B stated that the business is 100% export business, digital channels were used to communicate and exchange data with foreign customers. He mentioned that the business tried to use social media such as Facebook, Shopee, Lazada to sell the product, but it does not have any positive response.

Value Capture Innovation

Revenue and costs are the major concern to assess whether the business is earning profit or making losses. Generally, businesses will highly focus on earning more revenues at a lower cost. This was supported by SME A. The business is earning new revenue sources from online stores and concurrently reduced cost by using new online platforms and the efficient system. Value capture innovation of SME B is related to cost efficiency due to the efficient system and

earn new revenue sources from new offerings and large retailers (customers). However, respondent B highlighted that cost and revenue structure increases simultaneously. Foreign retailers requisite the business to use their integrated system for reporting and data-entry purposes, some retailers demands the business to use particular invoice format. Consequently, the business must hire new employees for these additional tasks, leading to high cost and low profit margin.

In service sector, as highlighted by respondent C, new revenue streams comprise rental fees of digital machines (bound with terms and conditions) and cross-selling by using virtual platform. It means that when customers purchase a digital machine, the staff will suggest the purchases of relevant parts and convince customers to buy it together. Cost structure is lower when exporting digital machines to foreign countries, with the assistance from flexible logistics partners charging lower prices and faster and speedy procedures. In the context of SME D, for new sources of income, other than earning from service charge at 9% on total purchases, the business gains from lower currency exchange rate when charging a higher exchange rate to customers. Cost was reduced by using an online inventory system instead of frequently going to China to manage the warehouse's goods. The business also does not need to rent a warehouse in Malaysia as it has a reliable logistic partner to avoid delays in delivery that could lead to losses and customer complaints.

In sum, the findings illustrate that all SMEs adopt DBMI via value creation innovation, value proposition innovation, value delivery innovation, and value capture innovation at the initial stage that involves basic digital technologies/systems.

Theme 2: Issues and challenges during DBMI adoption

It is not peculiar that any new changes tie with certain obstacles and challenges. The first step is always the difficult one. Respondent A mentioned that they are learning and adopting DBMI. Some employees may face difficulties using specific systems, but they communicate and convince employees to learn and practice it to sustain the business. When encountering problems, employees can get support from top managers.

Respondent B emphasized that it takes time to learn how to incorporate automated machines in the production process. It is challenging as not all digital machines are suitable for the business due to many customized orders that required different formulations, mixing of more than 150 compounds with various ingredients, various mouldings. The business is in the midst to seek for the most appropriate digital machine to replace some of the manual production processes. Secondly, the business using large retailers' real-time system to key in the relevant information for the product specification and access the packaging instruction, using large retailers' integrated quality systems to receive feedback and returns from customer/end users, which resulting in heavier workloads and new employees are needed to key in the relevant data. The third challenge is to scout for better digital system/software to digitalize the internal processes of functional departments. For instance, e-HRM system that can synchronize the employee working hours with the payroll. Finally, not all newly adopted digital technology and automated machine can integrate well with the existing one and yield the expected outcomes. As such, to overcome these challenges, the business still constantly looking for digital experts who can assist them to adopt DBMI efficiently and effectively.

As mentioned by respondent C: "During DBMI adoption, there are employee grievances on spending more time, efforts and higher workload to support DBMI". The director uses monetary rewards to motivate employees to receive more inquiry from online platforms,

websites and social media. The director will trace whether the orders were placed on the online platform and give rewards accordingly.

The challenges confronted by SME D is the business owner spends a lot of money searching for the best-customized system to manage the business. They perform a trial run to determine errors and make changes accordingly. Some systems are too vulnerable and are hacked easily. The staff will record the logistics partner's delivery speed, and the business owner will change the logistic service if necessary.

It was observed that in SMEs A, C, D found responsive solutions to overcome the challenges. As demonstrated in SME C, employees can earn more incomes, and business can attain positive results. On the contrary, SME B trying their best to search for external experts to support their DBMI adoption and digital transformation pathway.

Theme 3: Antecedents of DBMI

Entrepreneurial Leadership and DBMI

Entrepreneurial leadership refers to the convergence of entrepreneurship and leadership, where leaders play a vital role in influencing and leading followers to recognize, exploit entrepreneurial opportunities, and achieve organizational goals (Renko, 2017). For instance, adopt DBMI effectively. It was observed that respondents mentioned the attributes of entrepreneurial leaders such as risk-taking (all SMEs), innovative (SME A, B, C), visionary (SME A and B), and passionate (SME C and D) can influence DBMI adoption. These characteristic of entrepreneurial leadership was highlighted by Carsrud et al. (2018).

For instance, respondent A states that: "A leader who can take calculated risks, solve the problem using innovative ways, visionary for future changes and trends, always encourage employees to do the tasks innovatively can support DBMI adoption in the business". Respondent B have the same viewpoint whereby entrepreneurial leader who can take risks and always look for innovative ways to transform existing ways to do business, determine the future business direction and exploit new opportunities, looks for expert assistance and advice to digitalize further on the existing production line, and the internal process can promote DBMI adoption for the business. Respondent C argues that it's essential for an entrepreneurial leader to be passionate towards the business, take risks and venture into innovative solutions, such as innovate the ways they create and deliver values to the customers. Respondent D delineates that: "As a business owner and entrepreneurial leader, I am passionate and always take risks to customize the system and do a trial run, improve it from errors, help customers to import some sensitive items such as electronic items, which will be difficult for the customer to import by themselves. This can support DBMI adoption in the business".

The findings reflected that entrepreneurial leaders play an influential role to taking risks to employ new digital technologies/system, leading employees to use innovative ways to challenge traditional approaches to accomplish the tasks, offering future-oriented products and services, passionate and ties themselves with business success. It can be concluded that entrepreneurial leaders can support DBMI adoption of SMEs.

Digital Capability and DBMI

Digital capability refers to the extent of an organization's capabilities to manage its digital technologies (Khin & Ho, 2019). The organization tends to adopt DBMI with its superior digital capability (Weill & Woerner, 2013). All respondents verified that the digital capability of the business can affect the DBMI adoption.

As highlighted by respondent A: "The business's digital capability to seek new and affordable digital technologies to raise efficiency, productivity and profit can influence DBMI adoption. With the relevant digital technologies, the business can perform innovation on existing business models effectively and efficiently". Respondent B and D delineated that the business's digital capability to manage new digital technologies/system to improve productivity is vital in DBMI adoption. In contrast, respondent C emphasized that the business's digital capability to make flexible adjustments on digital machines (with support from partners) and using modern digital technology definitely can promote the DBMI of the business.

The findings revealed that digital capability is the driving factor of DBMI. If SMEs lack competencies to manage their digital technologies/system, it portrays a barrier for them to use digital technologies to digitally innovate their business models.

Government Support and DBMI

Government support in the form of financial and non-financial assistance are crucial for SMEs to adopt DBMI (Mohtaramzadeh et al., 2018). It was observed that respondent A and D received financial assistance from the government to adopt DBMI. As evidence, SME A receive a matching grant of up to RM5000 for a digital 'Autocount' business system and 'Penjana' loan from BSN was attained by SME D to improve its digital platform. Respondent B asserts that financial support from government such as emergency financial assistance during COVID-19 at RM0.5m (2.5% plus BLR rate) from UOB, retaining the employee fund can support the business operation. Due to the pandemic, the funds were used for business sustainability instead of DBMI.

The government's training in the form of human resources development fund (HRDF) claimable was highlighted by respondent B, and training related to digital platform was mentioned by respondent D to improve DBMI. Respondent C explained that: "For my business, entrepreneurial leadership and digital capability are more important than government support in DBMI adoption". Even though respondent C believes that government support plays a role to support DBMI and has experience applying for government financial support; however, due to strict terms and conditions, bureaucratic processes, it is not easy to attain. He mentioned that due to COVID-19, many SMEs suffered from losses, and he hopes they can get government grants and funds to support their DBMI adoption. Even though this is not a cash-rich company, his perception is focusing on targeting the right customers to earn higher profit and improve business performance.

Exclude SME B, most respondents (SME A, C, D) emphasized the importance of government support in DBMI adoption. Although government support for SME C is perceived as insignificant, but respondent C asserts that financial assistance from government plays a significant role in supporting SMEs to venture into DBMI to achieve business survival during the pandemic.

Theme 4: Outcome of DBMI

DBMI and SMEs' Competitiveness

SMEs' competitiveness are associated with their preceded and long-term performance and it can be influenced by DBMI (Bostan et al., 2019). All respondents indicated that DBMI can contribute to business competitiveness, even though at the minimal level (SME B).

As stated by respondent A: "DBMI adoption leads to higher sales; streamline, standardized and efficient business process; forecasting more easily; speedy responses to market changes and

opportunities as compared to competitors. This can support our expansion strategy in the future".

Respondent B delineated that digital technology, automation and digital printer support the business to reduce cost, produce quality products, raise efficiency. However, the adoption of DBMI at the basic level would only contribute to profit at the minimal level.

Perspective by respondent C: "Other than DBMI adoption, I will always learn from daily news for market changes and opportunities to stay competitive with the competing organizations". As compared with competitors, he has posited that the business has the ability to offers digital machines at higher quality to customers.

Respondent D pointed out that, with DBMI, the business uses shorter times to respond to customer inquiries and orders, speedy delivery and charging lower service fees as compared to competitors". He explained that the reviews from customers provide avenue for them to understand their performance in relation to their competitors.

Discussion and Conclusion

Digitalization leads to disruptions in the business model and SMEs are forced to adopt the DBMI. This is because, failure to modify the existing business model may be detrimental to the business in the long run given the dynamic changes in the external environment. Apparently, the authorities in the field entrepreneurship such as SME Corporation Malaysia, Malaysian Technology Development Corporation (MTDC), National Entrepreneur and SME Development Council (NESDC) have emphasized the importance of digital business model as a secret recipe for businesses to operate competitively and sustain in long term (MTDC, 2017; SME Corporation Malaysia, 2021). This is the first work to examine the proposed research model in SMEs, Malaysia. The findings from most respondents augur well with those of existing literature, in which entrepreneurial leadership, digital capability, government support (except SME B) are the antecedents of DBMI, and DBMI can contribute to SMEs' competitiveness.

Theoretical Implications

There is a significant gap in our knowledge on antecedents and outcome of DBMI (Parida et al., 2019; Verhoef & Bijmolt, 2019). This study extends the theory of dynamic capabilities theory to explain how digital capability as an important resource can promote DBMI adoption and how DBMI improves SMEs' competitiveness. Upper echelon theory gained attention in business model and business model innovation literature (Anwar et al., 2019; Guo et al., 2013; Sannino et al., 2020; Zhang et al., 2017), the institutional theory used frequently in e-commerce business model literature (Lim et al., 2016; Oxley & Yeung, 2001; Zhai & Liu, 2013; Zhang et al., 2016). However, these theories have not been widely used to conceptualize entrepreneurial leadership and government support as antecedents of DBMI. Hence, the present study highlights the prominence of the upper echelon and institutional theory, extending the ability of dynamic capabilities to explain DBMI as a contribution.

Practical Implications

Digital business model innovation is gaining increased attention (Nunes & Russo, 2019). The findings from prior literature and interviews contribute to the knowledge of DBMI to SMEs, practitioners, policymakers, and scholars. This study suggests that, in order to be competitive in the contemporary dynamic era, SMEs need to (1) innovatively design the elements of digital business model including value creation innovation, value proposition innovation, value

delivery innovation and value capture innovation; (2) adopt entrepreneurial leadership; (3) enhance digital capability of the organization and (4) leverage on the government support mechanism made available to SMEs. SMEs and practitioners can put more focus on the antecedents that support DBMI as well as to grasp, the ways of other SMEs to innovate with the four elements of DBMI to become more competitive in the digital environment. In addition, for scholars, this study can serve as a guideline for them to dwell further on the concept and effectiveness of DBMI. Policymakers should seize the strengths of DBMI and develop appropriate development programs, policies, action plans, and measures to raise SMEs' competitiveness in Malaysia.

Limitations and Suggestions for Future Research

This study has several limitations. First, it is important to highlight that the primary data from four SMEs in the manufacturing and service industry may limit the generalization of the findings in other industries and countries. It could have some subjective and bias perceptions due to the infancy level of DBMI and each respondent may have various interpretations on it. Second, this is not a longitudinal study, and it is not easy to provide an in-depth justification for the effectiveness of using this proposed research model. Third, the number of years the SMEs have been in business was not considered and could limit the elaboration of DBMI adoption. Future research could investigate DBMI adoption using an empirical study by using either qualitative, quantitative, or a mixed-method approach, particularly the influence of government support on DBMI. This is due to the minor discrepancy from the data provided by SME B that calls for attention to this relationship. By doing this, the findings could be applied to SMEs in different industries. Future research could delve into the longitudinal study to investigate the antecedents of DBMI in a particular period, adoption of DBMI later, and outcome of DBMI in another timeframe to obtain valuable knowledge. Lastly, future research may include the "SMEs' age" to obtain new insights on DBMI adoption. This is because established and experienced SMEs could have more resources to acquire better digital technology/system to create and deliver values to the customers. On the contrary, younger SMEs could be more familiar with the latest digital system/technologies and employ it to promote superior DBMI. Older SMEs could be accustomed and comfortable with the status quo making it challenging for them to adopt DBMI. It could be interesting to discover more useful information via this inclusion criterion.

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