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**EMBRACING DIGITAL INTERACTIVE PLATFORMS FOR RAPID  
INTERNATIONALIZATION****擁抱數字交互平台以實現快速國際化**

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**Abstract**

Digital interactive platforms (DIP) enhance communication in a growing online interaction and promote innovation in small business operations. However, there is still a lack of knowledge about the interactions between small and medium-sized enterprises (SMEs) and stakeholders via DIP and the factors contributing to accelerating internationalization. Therefore, this study aims to explore the DIP used by SMEs to interact with service providers to accelerate their internationalization. This study applied the case study methodology and used a dyadic process with selected service providers and Malaysian manufacturing SMEs. The findings of this study examine the interactions of SMEs and service providers, specifically through DIP. From the analysis, two factors contributing to SMEs' rapid internationalization can be deduced. The novelty of this study is that it contributes to the understanding of the DIP used by SMEs to interact with service providers and identifies internal resources and the external environment as DIP factors for SMEs' rapid internationalization. A framework is provided for SMEs to use DIP for rapid internationalization.

**Keywords:** Digital Interactive Platforms, Internal Resources, External Environment, Small and Medium-Sized Enterprises, Rapid Internationalization

**摘要** 數字互動平台在不斷增長的在線互動中加強溝通，促進小型企業運營的創新。然而，對於中小型企業與利益相關者之間通過數字互動平台進行的互動以及促進國際化加速的因素，仍然缺乏了解。因此，本研究旨在探討中小企業用於與服務提供商互動以加速其國際化的數字互動平台。本研究應用案例研究方法，並與選定的服務提供商和馬來西亞製造業中小型企業一起使用二元過程。本研究的結果考察了中小企業和服務提供商之間的互動，特別是通過數字互動平台。從分析

中可以推斷出促成中小企業快速國際化的兩個因素。本研究的新穎之處在於，它有助於理解中小企業與服務提供商互動時使用的數字互動平台，並將內部資源和外部環境確定為中小企業快速國際化的數字互動平台因素。為中小企業提供了一個框架，以使用數字互動平台實現快速國際化。

**关键词:** 數字互動平台、內部資源、外部環境、中小企業、快速國際化

## I. INTRODUCTION

Digital interactive platforms (DIP) refer to interaction with applications that help enhance and shape people's traditional forms of communication. Specifically, DIP refers to the digital applications, infrastructure, or similar digital components that affect people's lives in business, enterprise, and society [19], [24], [25]. Small and medium-sized enterprises (SMEs) with DIP are transforming themselves and paving the way for creating corporate and business value [13], [15]. DIP enhances business performance through high customer loyalty, thus increasing the customer base and motivating businesses to develop new products and marketing tactics [6], [26]. Interaction with customers benefits SMEs as it provides them with positive feedback on customers' experiences with the services or products, which contributes to the development of new products [4], [5], [7].

Ramaswamy and Ozcan introduced DIP in their work for the interactive shared space between companies and customers in social networks enabled by digital technologies [26]. Digital technologies and platforms enabled the integration of interactive activities for enhanced interactions [19], [25]. Subsequently, the operational definition of DIP extended to "a multiplicity of interactive system environments that connect creational interactions with how experienced outcomes emerge from their underlying resourced capabilities" [25].

In the current literature, there are only a few studies that deal with the use of DIP in small and medium-sized enterprises [3], [6], [36]. However, SMEs contribute to economic growth in many countries [10], [19]. Moreover, DIP promotes value creation and customer loyalty, both essential elements of SMEs' success [17]. Therefore, SMEs need to improve their competitive advantage and connect with resources through DIP [13], [15].

The inclusion of DIP is particularly important as the world is currently facing the Covid 19 pandemic, which requires numerous rules such as social and physical distancing, and many countries are introducing travel restrictions [16], [22], [24]. Instead of maintaining business activities both at home and abroad, SMEs can

choose digital technologies for DIP as an option for business transactions and interaction with customers and stakeholders [2], [13], [16].

This study uses a qualitative case study methodology to explore DIP embraced by SMEs to interact with service providers for rapid internationalization. Furthermore, this study suggests a framework for embracing DIP among SMEs for rapid internationalization.

## II. LITERATURE REVIEW

### A. Digitalized Interactive Platforms (DIP)

Over the past 40 years, researchers have focused on studying digital technologies of the time. Initially, in the 1980s, researchers focused on computerization and computer-assisted processes. In the 1990s, they continued their studies with IT, IS, and EDI (Electronic Data Interchange) [26]. Advances in information technology (IT) in the 2000s introduced new technologies with the emergence of other platforms such as online retailers and search engines [4], [8]. Thus, the Internet, websites, e-business, e-commerce, and enterprise systems provide people with numerous solutions [5], [8]. In 2020, the information technology research continued to advance further the digital innovation technology, e.g., cloud computing, business intelligence systems, knowledge management systems, social networks, Industry 4.0, and the Internet of Things (IoT) [26], [27], [31].

Embracing the digitized interactive platforms (DIP) enables SMEs to obtain resources and business opportunities [6], [12]. These platforms allow SMEs to access market information easily and resources and interact with customers [5], [7]. One of the main advantages of DIP is that information and resources can be accessed from any location in the world at any time [21], [23]. Furthermore, understanding offerings DIP implies a broader vision of value creation, where value is created through interactions rather than the exchange of a fixed offering between SMEs and their customers [17], [19], [25]. In addition, DIP enables users to connect with others who share their interests, meaning that users are more likely to find mutually beneficial relationships

that can lead to increased knowledge and understanding [7], [12].

Several DIPs offer users different ways to interact, and each platform has unique features and user experiences that users can enjoy [7], [26]. For example, social networking platforms, such as social media like Facebook, Instagram, Telegram, and YouTube channels, allow users to connect with others to communicate and share content, ideas, and opinions [26], [27]. Online marketplaces, on the other hand, allow users to interact with each other and within the marketplace [9], [13], [19], [22]. Search engines available today, e.g., Google™, Yahoo, MSN Search, Bing, and Ask, are the websites or programs that help people find information on the Internet. SMEs can access anything they need in this vast reservoir of information within seconds [8], [15].

The growth of e-commerce platforms serves SMEs to improve the firm's ability to increase sales, customer numbers, and participation in online transactions [5], [33]. These platforms go beyond traditional online commerce and help SMEs sell products and services over the Internet without visiting a physical shop [5], [29]. The e-commerce platforms can refer to companies such as Amazon.com, eBay, and Alibaba Group, but also newer startups such as UberEATS and Airbnb [9], [25], [35]. Moreover, SMEs can get feedback on their products much faster than through traditional retail channels [15], [17], [25].

A mobile application is a software application that allows users to access information and services through mobile devices such as smartphones and tablets [26], [29]. They are usually designed to manage personal or business affairs with numerous functions [30]. The advantage of using mobile apps for businesses is that they can keep track of important information and updates [25]. In addition, these apps can help SMEs increase customer loyalty by providing quick access to important information and services and customizing the content of offers on the website or in the shop [4], [14].

## **B. SME Internationalization**

Researchers conceptualize internationalization as the pursuit of entrepreneurial opportunities at the firm and institutions across national borders [19], [23], [32]. Researchers have found that SME internationalization depends on the internal resources and external environment of SMEs [10], [21], [35].

Internal resources, often referred to as internal competencies, are owned or developed by SMEs and can be used for firm growth and to

gain a competitive advantage [10]. SMEs have limited resources, especially financial and knowledge resources, but such distinctive internal competencies can help them overcome these limitations [2], [4], [10]. Internal resources are categorized as managerial (related to the entrepreneur's characteristics, e.g., experience, motivation, knowledge, and skills), physical (e.g., firm size, staffing, finances), and firm-specific competencies (e.g., product/service strengths, firm strategy, firm innovation). The management competencies refer to management aspects. Due to the small size of SMEs, the entrepreneur's business expertise and experience, experiential knowledge, business ideas, inventiveness, financial accessibility, and networking skills are all examples of internal competencies for SMEs [10], [32]. In addition, SMEs can use digital technologies as a strategic networking tool to enhance their internal capabilities and compete in the global marketplace [1], [2].

The external environment represents external forces that are either an opportunity or a threat for SMEs to exploit and establish their business growth and international market expansion [10], [32]. It is beneficial for SMEs to develop new ideas and create strategies, but it also increases complexity as SMEs have to deal with the obstacles and challenges of internationalization [9], [10]. Market and industry, regulatory and legal frameworks, similar social and cultural conditions, the global economic panorama, national and international institutional frameworks, and technological innovations are all part of the external environment [1], [9], [10], [32]. Small and medium-sized enterprises that see the external environment as an opportunity can use developments in digital technologies to manage complexity and achieve their goals in the global market [3], [6], [21].

Exploring the internal resources and external environment is crucial to use the internal resources as strategies to counter the external environment before initiating internationalization [10], [12], [36] because SMEs suffer from limited resources due to their small size while competing with multinational companies in the international market [10], [32]. So, it is important to look for ways to increase the internal resources of SMEs.

## **C. Technology Acceptance Model (TAM)**

The Technology Acceptance Model (TAM), developed by Venkatesh and Davis in 1996, is an information system theory that defines models as theories of how individuals and groups respond to new technologies [4]. The model was developed in response to users' unwillingness to

accept new technologies. The model is based on the factors of social norms, technical capabilities, perceived benefits, perceived risks, and implementation intentions [1], [28].

The model has been used to study the acceptance of new technologies such as online banking, mobile phones, and broadband internet [1], [9], [15]. It has also been used to explain why some technologies are more widely adopted than others [12], [30]. TAM in small businesses explains how individuals, groups, and organizations interact with new technologies and influence business performance [1], [28], [34].

The model has been criticized for its lack of specificity and oversimplifying complex issues [1]. It has also been argued that the model produces limited studies on a guideline for SMEs to embrace digital technologies in business and communication [1], [28]. Nevertheless, the model remains a popular tool for researchers trying to understand the dynamics of technology adoption [1], [4], [21].

### III. METHOD

A case methodology explored the factors that embrace DIP for SMEs' rapid internationalization. This method enables researchers to gain insights into SME internationalization by using DIP. As qualitative research is exploratory, there is a lack of understanding of 'how,' 'why,' and 'what' to define themes [11], [18]. The focus of a case study as a qualitative research strategy is to obtain rich information and insights into the respondents' perceptions [18]. The qualitative strategy focuses on people's feelings, actions, and perspectives to understand reality [11], [18]. This study aims to obtain data from SMEs about their experiences using DIP for internationalization, especially their interactions with service providers.

Following [13], another in-depth study will improve SMEs' understanding of international business. Studies have shown that digital technologies can facilitate SME internationalization. Therefore, two SMEs in the food and beverage manufacturing sector were selected as participants to understand how they embraced DIP for rapid internationalization. The cases were selected from the list of MATRADE's export directory (MATRADE Directory). In selecting the cases, care was taken to ensure that they were SMEs that had been in business for more than five years and benefited from support programs from government agencies.

The study collected data through semi-structured interviews of two dyadic groups, as presented in Figure 1. Each group comprised two

top managers from the service providers and SME owners. The respondents are those who have experience interacting through DIP.



Figure 1. Formation of dyadic groups

The study used a variety of data collection methods, including field notes, recordings, and transcripts [11], [18], [20]. We conducted the online interviews using Microsoft Team during the Movement Control Order (MCO) imposed by the Malaysian government at the time of the Covid 19 pandemic, which resulted in travel restrictions and social distancing. This method saved costs and time in qualitative studies as some interviewees were not present in the researcher's location [18], [20].

The results of the interviews allowed for an in-depth analysis of the interaction between SMEs and service providers using DIP for internationalization. Table 1 shows the aspects of the DIP internationalization experience from both SME owners and service providers.

Table 1.

The aspects of the DIP experience for internationalization of the respondents

Respondents	The aspects of DIP experience for internationalization
SMEs owners	<ul style="list-style-type: none"> <li>• Entrepreneurs' background</li> <li>• Internal resources</li> <li>• Types of Digital Interactive Platforms (DIP) used for interaction</li> <li>• Purpose of DIP</li> </ul>
Service Providers	<ul style="list-style-type: none"> <li>• Service Providers' information</li> <li>• Institutional policy on internationalization</li> <li>• Types of Digital Interactive Platforms (DIP) used for interaction</li> <li>• Purpose of DIP</li> </ul>

### IV. RESULTS AND DISCUSSION

In the following, the result of the study is structured. It begins with a within-case and cross-case analysis, followed by a detailed discussion of the DIP, enabling small and medium-sized enterprises to be rapidly internationalized.

#### A. Within Case Analysis

##### 1) Case A

Company A was founded in 2005 by two female entrepreneurs and manufactures jelly drinks, among the best-selling jelly drinks in Malaysia. The company's founder had ten years of professional experience in the food industry, while the co-founder had worked in several

leading restaurants such as Kentucky Fried Chicken (KFC), Shakey's Restaurant Sdn Bhd, Care Food Industries Sdn Bhd, and Sushi King (M) Sdn. Bhd. One of them even had a degree in food management. The jelly drinks were sold in the Malaysian and international markets, including Brunei, Singapore, and Papua New Guinea. The company was operated in Selangor with ten employees in administration and 20 in production. The company used social media, print materials, and 50 sales agents for sales and marketing throughout Malaysia. In early 2022, the company's export turnover was more than RM1 million. The company has availed of entrepreneurial facilities and support programs from various service providers such as SME Corporation Malaysia, Malaysia External Trade Development Corporation (MATRADE), SME Bank and Malaysian Agriculture Research and Development Institute (MARDI), Ministry of Health (MOH), Ministry of Agriculture (MOA), Perbadanan Usahawan Nasional Berhad (PUNB), Companies Commission of Malaysia (SSM), Jabatan Kemajuan Islam Malaysia (JAKIM), Majlis Amanah Rakyat (MARA), Lembaga Kemajuan Ikan Malaysia (LKIM), Perbadanan Kemajuan Negeri Selangor (PKNS) and Malaysian Productivity Corporation (MPC). The company was assisted from its inception to further development and later the increased exposure to international markets totaling RM1,500,000. According to the founder, the financial aspect was the main obstacle in sustaining the company's operation, followed by market regulation. Both emphasized that the institutional support helped them internationalize, which was made possible through business grants and entrepreneurial programs such as basic skills in sales and marketing, accounting, finance, and production, including a joint study with MARDI on Food Act 1983 compliance in 2016.

The joint research occurred when the 1983 Food Act introduced new regulations to reduce sugar content in drinking products. According to the founder, reducing the sugar content in a flavored jelly drink was impossible, which led to the joint research. The types of DIP used to interact with service providers were emails, faxes, WhatsApp, Facebook, Messenger, interactive forums, Twitter, and the Internet. These DIPs were used to access finance and information, share product and market information, and obtain business facilitation. DIPs such as WhatsApp, Facebook, and emails enabled SMEs and service providers to make faster decisions than physical interactions. SME owners highlighted that using DIP reduced the bureaucratic burden of accessing

business facilities and support programs from service providers. The top managers of service providers confirmed the use of DIP to interact with SMEs in the provision of entrepreneurial facilities and support programs.

## 2) Case B

Company B was established in 2010 with two administrative and eight production teams. The owner was a senior freight forwarder with 17 years of working experience at a Taiwanese company and was exposed to the export-import industry. In 2011, the company started manufacturing tea-flavored stevia sweeteners and distributed the product to kiosks, herbal shops, selected supermarkets, and several pharmacies in Selangor, Kuala Lumpur, Sabah, and Sarawak. In 2015, the Malaysian government introduced the Goods and Services Tax (GST), which affected sales and increased operating costs. As a result, the company found it was difficult to get cheaper raw materials, and as a result, the company was forced to reduce production, which led to a decline in the number of customers. In order to solve the problem, the founder and management had to make several changes and transformations in the company's operations. In 2016, the company collaborated with the health and medical industry to increase skills and capacity and expand the business to the international market. The collaboration benefited the company, and in 2017, the company undertook its first international market expansion to Singapore, Brunei, and Indonesia. The company also actively participated in national and international exhibitions, targeting new customers and successfully penetrating the Arab-Saudi market. The company had successfully secured grants and support programs totaling more than RM2,500,000 for marketing subsidies, machinery, vehicles, factory renovations, raw materials, and logistics costs. The company interacted with service providers such as SME Corporation Malaysia, Malaysia External Trade Development Corporation (MATRADE), SME Bank and Malaysian Agriculture Research and Development Institute (MARDI), Majlis Amanah Rakyat (MARA) Department of Islamic Development in Malaysia (JAKIM) and Perbadanan Kemajuan Negeri Selangor (PKNS) through DIP. The company used emails, faxes, WhatsApp, and the Internet. The SME owner said that the DIP facilitated interaction with the service providers to save time and cost. The service providers confirmed that using digital technologies facilitated interaction with SMEs in providing finance and support programs.

**B. Cross-Case Analysis**

The consolidated key findings regarding SMEs and the service providers are shown in Table 2 and Table 3. The findings show that the SMEs and the service providers use different types of DIP communication, including emails, faxes, the Internet, web portals, WhatsApp, Facebook, Messenger, Twitter, YouTube, and interactive forums. Service providers are promoting the use of DIP through cloud computing and enterprise resource planning (ERP).

The roles of DIP for Case A and B were to access funding and information, share company/product/market information, obtain entrepreneurial opportunities and collaborate with service providers. These opportunities are used to improve internal resources for internationalization. The roles of DIP for service providers A and B were internal and external interaction, delivery opportunities and support programs, customer feedback, data storage, and data security. For service provider B, DIP is also used for service provider coordination.

Case A used financial resources from service providers for marketing, product development, production, research, and development (R&D). Case B used financial resources for product development, production, research and development (R&D), marketing grants, machinery, vehicles, factory renovations, raw materials, and logistics costs.

Table 2. Summarize findings for SMEs

Aspect	Company A	Company B
Product	Jelly drink	Tea
Founded	2005	2010
No. of employees	30	10
No. of entries to the foreign market	3	4
Types of DIP used	Mobile phone, Emails, faxes, WhatsApp, Facebook, Messenger, interactive forum, Twitter, Instagram, and Internet	Mobile phone, Emails, faxes, WhatsApp, and Internet
Role of DIP	Access to financing and information, exchange company/product/market information, obtain business facilities, seek collaboration through service providers	Access to financing and information, exchange company/product/market information and obtain entrepreneurial facilities

Table 3. Summary findings for service providers

Aspect	Service provider A	Service provider B
Main role and responsibility	To assist, train, and guide SMEs Bumiputra (Malays and other indigenous Malaysians) in business and industry	To drive the development of SMEs through coordination and business support.
Facilities and support programs offered	Financing, entrepreneurial programs, domestic and international programs, advisory services, and market access.	Access to financing, innovation, technology adoption, legal and regulation, infrastructure support, advisory services, and market access.
Types of DIP used	Emails, faxes, Web portal, WhatsApp, Facebook, Messenger, Twitter, YouTube, ERP, interactive forum, cloud computing, company website, and Internet	Emails, faxes, Web portal, WhatsApp, Facebook, Messenger, Twitter, YouTube, an interactive forum, cloud computing, company website, and Internet
Role of DIP	Inter and Intra interaction, deliver facilities and support programs, customer feedback, data storage, data security	Inter and Intra interaction, service providers coordination, delivery facilities and support programs, customer feedback, data storage, data security

The findings highlight that the internal resources and external environment are the factors that comprise DIP for the internationalization of SMEs (Table 4).

Table 4. Summarizing factors and categories

Factors	Categories	Description Items
Internal Resources	Managerial competencies	<ul style="list-style-type: none"> <li>▪ Working experience in related food industries (CA)</li> <li>▪ Experiential knowledge in export-import industry (CB)</li> </ul>
	Physical	<ul style="list-style-type: none"> <li>▪ Experience management team (CA, CB)</li> <li>▪ Skilled production team (CA, CB)</li> </ul>
	Firm specific competencies	<ul style="list-style-type: none"> <li>▪ Product innovation (CA, CB)</li> </ul>

Factors	Categories	Description Items
	Technology competencies	Conduct research and development (RandD) (CA, CB)
		Utilize social media for interaction (CA, CB)
	Financial Accessibility	Hired IT expert (CA)
		Utilize financial assistance from institutional (CA, CB)
External Environment	Market and Industry	Market opportunity
	National and institutional framework	Entrepreneurial initiatives and support programs
	Technology Innovation	Institutional ICT Plans

SMEs acquire or develop internal resources or competencies to help the business grow and gain a competitive advantage [4], [6]. The result shows that the most important internal resources for Case A and Case B were management in combination with the entrepreneur's experience and business knowledge. They had acquired their knowledge and skills through several years of professional experience and used them for their business activities. These management skills supported SMEs in adopting DIP as it becomes important business operations [4], [6].

In both cases, DIP was used for business interactions with customers, suppliers, business partners, and service providers, especially in procuring resources. In addition, Case B had hired digital marketing executives to manage sales and marketing via DIP. Case 2 also used e-commerce, which increased international sales. On the other hand, case A did not consider digital marketing as there were not enough staff to manage their operations instead, they used digital applications for interactions such as WhatsApp, a website, and the Internet. This insight supports the internal resources of SMEs, which develop and use DIP to interact with service providers and obtain funding and support programs [3], [34]. In addition, SMEs have internal resources that help them adapt quickly to changes in global markets. As a result, they are better positioned to take advantage of opportunities in new markets while minimizing the risks associated with internationalization.

The external environment describes external elements that are either an opportunity or a threat for SMEs to exploit and develop to grow their businesses and expand into global markets. Among the external environment factors, market regulation has the greatest impact in both cases on the speed of SMEs' internationalization [4], [12]. For instance, for Case A and B, the external environment was seen as an opportunity to increase efficiency and competitiveness. In case A, the regulation of the Food Act drove the

founder to conduct joint research with research and development (R&D) service providers to improve the product and comply with the regulations. Similarly, in case B, changes in operations and production were made to align with government GST regulations. In Cases A and B, the uptake of DIP among the service providers is increasing, especially during the Covid 19 pandemic, as they rely mainly on their interactions in DIP in the exchange of services. The service providers adopt DIP to fast deliver the facilities and programs needed for SMEs for internationalization. In cases A and B, DIP supports the SMEs by facilitating the transfer of facilities, knowledge, and skills to improve their competitive advantage in the global market.

### C. Emergent Framework

The results suggest two factors for including DIP for rapid internationalization, as shown in Figure 2. So, internal resources and the external environment are important factors for SMEs to embrace DIP for rapid internationalization.

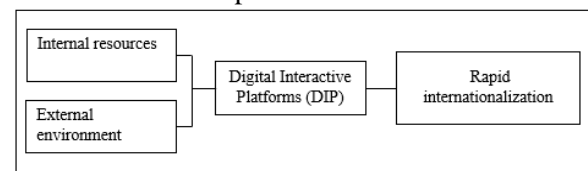


Figure 2. Emergent framework

DIP integrates SMEs' internal resources for rapid internationalization by providing a cross-functional platform for sharing best practices and resources and timely alerts on regulatory changes. The platform also helps companies monitor their global presence, identify opportunities and make the most of globalization trends. DIP helps SMEs optimize their internationalization efforts by integrating resources from various sources.

DIP is essential for SMEs to successfully and rapidly enter the international market [3], [6]. Digital technologies such as the Internet of Things (IoT), Industry 4.0, e-commerce, cloud computing, advanced robotics, social media, CRM, ERP, broadband, websites, and business intelligence systems are examples of digital technologies that have various impacts on business, society, policy, and consumers [15], [26], [31]. SMEs use digital technologies to innovate their business model regarding product and service offerings along with business operations and processes [13]. In addition, SMEs utilize digital technologies to serve as interactive business platforms, e.g., social networks, servers, databases, and storage for firm performance and to enhance their competitive advantage [13], [26].

DIP facilitates SMEs' communication and

information sharing, which affects SMEs' interaction and relationships with business partners and customers, and contributes to the growth of their business [19], [35]. The importance of DIP encourages governments, related organizations, and consultants to promote and use digital technologies. These measures include funding research into new digital technologies, developing regulations to encourage innovation, or investing in education and training programs that then help SMEs use digital technologies for their purposes [3], [30], [34]. Government and policy support for digitization is demonstrated through various channels, such as the level of investment in digital infrastructure and services, the number of government initiatives to promote digitization, and the extent to which regulations are tailored to support digitization [3], [17], [19]. The level of investment in digital infrastructure and services is an important indicator of government support for digitization. Government initiatives to promote digitization also indicate government support for digitization [13], [19]. These initiatives include funding for research and development (R&D) projects, assistance in formulating policy proposals related to digitization, and training programs to support SMEs [13], [27].

Social and cultural references to different cultures entail different expectations of how digital technology is used or how it could be communicated via DIP [21], [35]. There is no universal solution to address DIP's social and cultural issues [7] – [9]. While no solution works for everyone, concerted efforts by communities to adapt their practices to meet the needs of their environment best help the communities feel comfortable using digital technologies [25]. The communities need to adapt their practices using DIP to meet the needs in their communities [25]. The key considerations in technological adaptation include developing tailored training programs for individuals and groups who are not yet familiar or comfortable with digital technologies for DIP [13]. In addition, digital tools for communication between community members via DIP are encouraged, rather than relying on traditional interactions like physical meetings [17], [33], [36].

Advances in digital technologies have enabled SMEs to expand internationally [5]. SMEs use digital technologies to improve their communication and global marketing and minimize transaction costs in foreign markets [17], [33], [36]. In addition, SMEs use digital technologies to improve their internal resources and use them for rapid internationalization [4],

[5], [19]. As a result, SMEs have invested their capital in digital technologies that enable more personalized interaction with business partners and customers [6], [34]. Thus, the potential positive impact of digital technology on SMEs' ability is to integrate the external environment with digital technology to do business.

The Malaysian government well supports the adoption of digital applications in Malaysia. Technology adoption encourages people and businesses to use digital applications to communicate with society, for social, the community, and businesses, as well as online tools for government administration. Technological adoption is widespread in Malaysia's public service, non-profit and corporate sectors. Hence, the growing demand for digital services among service providers, especially as more and more people use digital devices to search for and access information and services.

## V. CONCLUSION

The main findings of this study are the exploration of DIP, which SMEs use to interact with service providers for their rapid internationalization. The study shows that DIP facilitates the rapid internationalization of SMEs by incorporating both internal resources and the external environment and is used for interaction, especially with service providers. The results also show what types of DIP are used and how DIP works beyond interactions. Based on the findings, this study outlines a conceptual framework for the rapid internationalization of SMEs. Therefore, DIP is recognized as a strategy SMEs should adopt in their business activities and interactions with stakeholders.

Furthermore, the findings of this study shed light on how SMEs use DIP to interact with service providers to obtain entrepreneurial facilities and support programs for rapid internationalization. This study contributes to the literature on SME internationalization, particularly in technology adoption, by proposing a new framework for engaging DIP in SMEs for rapid internationalization. Both internal resources and the external environment are the factors that lead SMEs to adopt DIP for rapid internationalization.

Previous studies on the rapid internationalization of SMEs, especially in the field of communication, have mostly focused on consumers and internal organization [4], [6], [7], [17]. In addition, there is a segmented understanding of the factors that drive digital technologies in business communication,



especially in developing countries [6], [13]. This study focuses on DIP, which SMEs use to interact with service providers to accelerate their internationalization. Service providers are important in promoting SMEs in developing countries by providing support programs and financial facilities. Accordingly, this study contributes to the theory of international business. The study's findings extend the studies on digital interactions between SMEs and service providers in developing countries and better understand and capture the related elements of institutional support and digitization policies for SMEs to use for rapid internationalization. Accordingly, this study expands TAM and suggests key factors associated with DIP, including the role and function of digital technologies for interactions, especially in SMEs. Furthermore, this study fills a gap in SMEs' international business research in developing countries [13], [17].

From a managerial standpoint, policymakers should develop digital technology infrastructure, training, incentives, and programs, especially in emerging and developing countries. In addition, initiatives must be developed to explore the potential of digital technology that DIP could use for service delivery to reach more citizens, especially for SME development. With the right initiatives integrated into a transformation agenda, government agencies and service providers can improve their services' efficiency, quality, and effectiveness. In addition, service providers must work with external partners to deliver comprehensive services to SMEs and citizens and achieve better outcomes.

For practitioners such as SME owners, especially those planning to internationalize rapidly, the framework facilitates the development of a business strategy that incorporates digital technologies into business operations and communications. This framework includes ensuring that their technology investments align with their business goals and digital transformation initiatives and building a strong governance framework to support digital innovation.

This study examined the interaction via DIP between SMEs and service providers regarding rapid internationalization. DIP is the new interactive way to improve their business performance and expand their network [2], [25]. The results suggest that digital technologies are a valuable tool to enable SMEs and their stakeholders to leverage for interactions and business transactions. The study highlighted internal resources and the external environment as key factors in using DIP for rapid

internationalization. Using DIP as an innovative interaction helps them obtain the necessary resources to improve their competitiveness in the global market [13], [33].

## VI. LIMITATIONS OF THE STUDY

There are several limitations to this study. First, this study was conducted in a developing country and limited the generalization of the results to other countries. Future research could expand the use of DIP among SMEs in different countries that significantly impact the speed of internationalization. In addition, the study would serve as evidence for country-level studies, as digital policy support and digitization practices may vary.

Second, the sample of this study is limited to small and medium-sized manufacturing enterprises. Future research should therefore extend the findings to other industries, such as services and high-tech industries. In addition, other factors and dimensions of digitization should be used to identify moderator or mediating effects for rapid internationalization. Third, this study was conducted using several case studies, which led to a lack of generalizations. Therefore, a statistical test and empirical results through a quantitative approach are needed. In addition, other constructs could be measured concerning DIP to provide important insights into SME internationalization.

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## REFERENCES

- [1] ANDARWATI, M., ASSIH, P., and AMRULLAH, F. (2020) Success of Small and Medium Enterprises (SMEs): Actual Technology Use in e-Marketplace Based on Technology Acceptance Model (TAM) Analysis. In: *2020 6th International Conference on Education and Technology (ICET) Success*, pp. 142-147.
- [2] CASSETTA, E., MONARCA, U., DILEO, I., DI BERARDINO, C., and PINI, M. (2019) The relationship between digital technologies and internationalization. Evidence from Italian SMEs. *Industry and*

- Innovation*, 27 (4), pp. 311-339.
- [3] DENICOLAI, S., ZUCHELLA, A., and MAGNANI, G. (2021) Internationalization, digitalization, and sustainability: Are SMEs ready? A survey on synergies and substituting effects among growth paths. *Technological Forecasting and Social Change*, 166 (C), 120650.
- [4] FRANCO, M., GODINHO, L., and RODRIGUES, M. (2021) Exploring the influence of digital entrepreneurship on SME digitalization and management. *Small Enterprise Research*, 28 (3), pp. 269-292. DOI:10.1080/13215906.2021.1938651.
- [5] HÅNELL, S.M., and NORDMAN, E.R. (2019) It's a new game out there: e-commerce in internationalizing retail SMEs. *International Marketing Review*, 37 (3), pp. 515-531.
- [6] HERVÉ, A., SCHMITT, C., and BALDEGGER, R. (2020) Digitalization, entrepreneurial orientation and internationalization of micro-, small- And medium-sized enterprises. *Technology Innovation Management Review*, 10 (4), pp. 5-17.
- [7] HOLLEBEEK, L.D., and MACKY, K. (2019) Digital Content Marketing's Role in Fostering Consumer Engagement, Trust, and Value: Framework, Fundamental Propositions, and Implications. *Journal of Interactive Marketing*, 45, pp. 27-41.
- [8] JEAN, R.B., and KIM, D. (2020) Internet and SMEs' internationalization: The role of platform and website. *Journal of International Management*, 26 (1), pp. 1-14.
- [9] JIN, H., and HURD, F. (2018) Exploring the Impact of Digital Platforms on SME Internationalization: New Zealand SMEs Use of the Alibaba Platform for Chinese Market Entry. *Journal of Asia-Pacific Business*, 19 (2), pp. 72-95.
- [10] KAHIYA, E.T. (2018) Five decades of research on export barriers: Review and future directions. *International Business Review*, 4, pp. 1-17.
- [11] KALU, F.A., and BWALYA, J.C. (2017) What Makes Qualitative Research Good Research? An Exploratory Analysis of Critical Elements. *International Journal of Social Science Research*, 5 (2), pp. 43-56.
- [12] KROMIDHA, E., and ROBSON, P.J.A. (2020) The role of digital presence and investment network signals on the internationalization of small firms. *International Small Business Journal: Researching Entrepreneurship*, 39 (2), pp. 109-129.
- [13] LEE, and FALAHAT, M. (2019) The Impact of Digitalization and Resources on Gaining Competitive Advantage in International Markets: The Mediating Role of Marketing, Innovation, and Learning Capabilities. *Technology Innovation Management Review*, 9 (11), pp. 28-38.
- [14] LEVINE, L. (2019) Digital Trust and Cooperation with an Integrative Digital Social Contract. *Journal of Business Ethics*, 160 (2), pp. 393-407,
- [15] LI, L., SU, F., ZHANG, W., and MAO, J.-Y. (2017) Digital transformation by SME entrepreneurs: A capability perspective. *Information Systems Journal*, 3, pp. 1-29.
- [16] LUNGU, A.E., BOGOSLOV, I.A., and STOICA, E.A. (2021) From Decision to Survival — Shifting the Paradigm in Entrepreneurship during the COVID-19 Pandemic. *Sustainability*, 13, 7674.
- [17] MATARAZZO, M., PENCO, L., PROFUMO, G., and QUAGLIA, R. (2021) Digital transformation and customer value creation in Made in Italy SMEs: A dynamic capabilities perspective. *Journal of Business Research*, 123 (2), pp. 642-656.
- [18] MERRIAM, S.B., and GRENIER, R.S. (2019) *Qualitative Research in Practice*. 2nd ed. Jossey-Bass.
- [19] MOHAMAD, A., RIZAL, A.M., BASIRUDDIN, R., and KAMARUDIN, S. (2019) Digital Interactions and Internationalisation of Small, Medium Enterprises. *International Journal of Recent Technology and Engineering*, 4, pp. 11029-11034.
- [20] MORGAN, D.L., and HOFFMAN, K. (2018) A System for Coding the Interaction in Focus Groups and Dyadic Interviews. *The Qualitative Report*, 23 (3), pp. 519-531.
- [21] NEUBERT, M. (2018) The Impact of Digitalization on the Speed of Internationalization of Lean Global Startups. *Technology Innovation Management Review*, 8 (5), pp. 44-55.
- [22] PERMADI, J., RHOMADHONA, H.,

- and APRIANTI, W. (2021) Digital Marketing to Support Business in Covid-19. *Advances in Economics, Business and Management Research*, 202, pp. 269-274.
- [23] PEUKER, V., STEINHÄUSER, S., and PAULA, F.D.O. (2020) Internationalization of SMEs : a systematic review of 20 years of research. *Journal of International Entrepreneurship*, 19 (2), pp. 165-195.
- [24] PURBASARI, R. (2021) Digital Entrepreneurship in Pandemic Covid 19 Era: The Digital Entrepreneurial Ecosystem Framework. *Review of Integrative Business and Economics Research*, 10 (1), pp. 114-136.
- [25] RAMASWAMY, V., and OZCAN, K. (2019) Digitalized Interactive Platforms: Turning Goods and Services into Retail Co-Creation Experiences. *NIM Marketing Intelligence Review*, 11 (1), pp. 18-23.
- [26] RAMDANI, B., RAJA, S., and KAYUMOVA, M. (2021) Digital innovation in SMEs : a systematic review, synthesis and research agenda. *Information Technology for Development*, pp. 56-80. <https://doi.org/10.1080/02681102.2021.1893148>
- [27] RUMO, J., and NDIEGE, A. (2019) Social media technology for the strategic positioning of small and medium-sized enterprises : Empirical evidence from Kenya. *European Journal Information System Developed Countries*, 85, pp. 1-12.
- [28] SALIMON, M.G., KAREEM, O., MOKHTAR, S., ALIYU, O.A., BAMGBADE, J.A., and ADELEKE, A. (2021) Malaysian SMEs m-commerce adoption: TAM 3, UTAUT 2 and TOE approach adoption. *Journal of Science and Technology Policy Management*. DOI: 10.1108/jstpm-06-2019-0060
- [29] SÁNCHEZ-TORRES, J.A., PATRICIA, S., and BERRÍO, R. (2021) The Adoption of E-commerce in SMEs : the Colombian Case. *Journal of Telecommunications and the Digital Economy*, 9 (3), pp. 110-135.
- [30] SCHMITT, C., and BALDEGGER R. (2020) Editorial: Digitalization and Internationalization. *Technology Innovation Management Review*, 10 (4), pp. 3-4.
- [31] STRANGE, R., ZUCHELLA, A., and STRANGE, R. (2018) Industry 4.0, global value chains and international business. *Multinational Business Review*, 25 (3), pp. 174-184.
- [32] TAN, A., BREWER, P., and LIESCH, P. (2018) Rigidity in SME export commencement decisions. *International Business Review*, 27 (1), pp. 46-55.
- [33] TOLSTOY, D., ROVIRA, E., MEL, S., and OZBEK, N. (2020) The development of international e-commerce in retail SMEs: An effectuation perspective. *Journal of World Business*, 56 (3).
- [34] VADANA, I., and TORKKELI, L. (2020) Digitalization of companies in international entrepreneurship and marketing. *International Marketing Review*, 37 (3), pp. 471-492.
- [35] WESTERLUND, M. (2020) Digitalization, internationalization and scaling of online SMEs. *Technology Innovation Management Review*, 10 (4), pp. 48-57.
- [36] WITTKOP, A., and WAGNER, R. (2018) How Digitalization Changes the Internationalization of Entrepreneurial Firms: Theoretical Considerations and Empirical Evidence. *Management Dynamics in the Knowledge Economy*, 6 (2), pp. 193-207.

#### 參考文：

- [1] ANDARWATI, M.、ASSIH, P. 和 AMRULLAH, F. (2020) 中小型企業的成功：基於技術接受模型分析的電子市場中的實際技術使用。在：2020 年第六屆國際教育與技術會議成功，第 142-147 頁。
- [2] CASSETTA, E.、MONARCA, U.、DILEO, I.、DI BERARDINO, C. 和 PINI, M. (2019) 數字技術與國際化之間的關係。來自意大利中小企業的證據。工業與創新, 27 (4), 第 311-339 頁。
- [3] DENICOLAI, S.、ZUCHELLA, A. 和 MAGNANI, G. (2021) 國際化、數字化和可持續性：中小企業準備好了嗎？增長路徑之間的協同效應和替代效應調查。技術預測和社會變革, 166 (C), 120650。
- [4] FRANCO, M.、GODINHO, L. 和 RODRIGUES, M. (2021) 探索數字創業對中小企業數字化和管理的影響。小型企業研究, 28 (3), 第 269-292 頁。DOI :

- 10.1080/13215906.2021.1938651。
- [5] HÅNELL, S.M. 和 NORDMAN, E.R. (2019) 這是一場新遊戲：零售中小企業國際化中的電子商務。國際營銷評論, 37 (3), 第 515-531 頁。
- [6] HERVÉ, A.、SCHMITT, C. 和 BALDEGGER, R. (2020) 微型、中小型企業的數字化、創業導向和國際化。技術創新管理評論, 10 (4), 第 5-17 頁。
- [7] HOLLEBEEK, L.D. 和 MACKY, K. (2019) 數字內容營銷在促進消費者參與、信任和價值方面的作用：框架、基本主張和影響。互動營銷雜誌, 45, 第 27-41 頁。
- [8] JEAN, R.B. 和 KIM, D. (2020) 互聯網和中小企業的國際化：平台和網站的作用。國際管理雜誌, 26 (1), 第 1-14 頁。
- [9] JIN, H. 和 HURD, F. (2018) 探索數字平台對中小企業國際化的影響：新西蘭中小企業使用阿里巴巴平台進入中國市場。亞太商業雜誌, 19 (2), 第 72-95 頁。
- [10] KAHIYA, E.T. (2018) 出口壁壘的五個十年研究：回顧與未來方向。國際商業評論, 4, 第 1-17 頁。
- [11] KALU, F.A. 和 BWALYA, J.C. (2017) 什麼使定性研究成為好的研究？關鍵要素的探索性分析。國際社會科學研究雜誌, 5 (2), 第 43-56 頁。
- [12] KROMIDHA, E. 和 ROBSON, P.J.A. (2020) 數字存在和投資網絡信號對小企業國際化的作用。國際小企業雜誌：研究企業家精神, 39 (2), 第 109-129 頁。
- [13] LEE 和 FALAHAT, M. (2019) 數字化和資源對在國際市場上獲得競爭優勢的影響：營銷、創新和學習能力的中介作用。技術創新管理評論, 9 (11), 第 28-38 頁。
- [14] LEVINE, L. (2019) 具有綜合數字社會契約的數字信任與合作。商業倫理雜誌, 160 (2), 第 393-407 頁。
- [15] LI, L., SU, F., ZHANG, W., 和 MAO, J.-Y. (2017) 中小企業企業家的數字化轉型：能力視角。信息系統雜誌, 3, 第 1-29 頁。
- [16] LUNGU, A.E., BOGOSLOV, I.A. 和 STOICA, E.A. (2021) 從決定到生存——在新冠肺炎大流行期間轉變創業範式。可持續性, 13, 7674。
- [17] MATARAZZO, M.、PENCO, L.、PROFUMO, G. 和 QUAGLIA, R. (2021) 意大利製造中小企業的數字化轉型和客戶價值創造：動態能力視角。商業研究雜誌, 123 (2), 第 642-656 頁。
- [18] MERRIAM, S.B. 和 GRENIER, R.S. (2019) 實踐中的定性研究。第 2 版。喬西-巴斯。
- [19] MOHAMAD, A.、RIZAL, A.M.、BASIRUDDIN, R. 和 KAMARUDIN, S. (2019) 中小型企業的數字交互和國際化。國際最新技術與工程雜誌, 4, 第 11029-11034 頁。
- [20] MORGAN, D.L. 和 HOFFMAN, K. (2018) 用於編碼焦點小組和二元訪談中的交互的系統。定性報告, 23 (3), 第 519-531 頁。
- [21] NEUBERT, M. (2018) 數字化對全球精益創業公司國際化速度的影響。技術創新管理評論, 8 (5), 第 44-55 頁。
- [22] PERMADI, J.、RHOMADHONA, H. 和 APRIANTI, W. (2021) 數字營銷以支持新冠肺炎中的業務。經濟學、商業和管理研究進展, 202, 第 269-274 頁。
- [23] PEUKER, V.、STEINHÄUSER, S. 和 PAULA, F.D.O. (2020) 中小企業國際化：對 20 年研究的系統回顧。國際創業雜誌, 19 (2), 第 165-195 頁。
- [24] PURBASARI, R. (2021) 大流行新冠肺炎時代的數字創業：數字創業生態系統框架。綜合商業和經濟研究綜述, 10 (1), 第 114-136 頁。
- [25] RAMASWAMY, V. 和 OZCAN, K. (2019) 數字化互動平台：將商品和服務轉變為零售共創體驗。紐倫堡市場研究所營銷情報評論, 11 (1), 第 18-23 頁。
- [26] RAMDANI, B.、RAJA, S. 和 KAYUMOVA, M. (2021) 中小企業的數字創新：系統回顧、綜合和研究議程。信息技術促進發展, 第 56-80 頁。<https://doi.org/10.1080/02681102.2021.1893148>
- [27] RUMO, J. 和 NDIEGE, A. (2019) 用於中小企業戰略定位的社交媒體技術：來自肯尼亞的經驗證據。歐洲期刊信息系統發達國家, 85, 第 1-12 頁。
- [28] SALIMON, M.G.、KAREEM, O.、

---

MOKHTAR, S. 、 ALIYU, O.A. 、  
BAMGBADE, J.A. 和 ADELEKE, A.  
(2021) 馬來西亞中小企業移動商務採用：  
譚3、乌托2 和脚趾方法採用。科技政策管  
理雜誌。DOI: 10.1108/jstpm-06-2019-0060

[29] SÁNCHEZ-TORRES, J.A.、

PATRICIA, S. 和 BERRÍO, R. ( 2021 ) 中小  
企業採用電子商務：哥倫比亞案例。電信  
與數字經濟雜誌, 9 (3), 第 110-135 頁。

[30] SCHMITT, C. 和 BALDEGGER R.  
(2020) 社論：數字化和國際化。技術創新  
管理評論, 10 (4), 第 3-4 頁。

[31] STRANGE, R.、ZUCHELLA, A. 和  
STRANGE, R. (2018) 工業 4.0, 全球價值  
鍊和國際商務。跨國商業評論, 25 (3),  
第 174-184 頁。

[32] TAN, A.、BREWER, P. 和 LIESCH, P.  
(2018) 中小企業出口啟動決策中的剛性。  
國際商業評論, 27 (1), 第 46-55 頁。

[33] TOLSTOY, D.、ROVIRA, E.、MEL, S.  
和 OZBEK, N. (2020) 零售中小企業國際  
電子商務的發展：效果視角。世界商業雜  
誌, 56 (3)。

[34] VADANA, I. 和 TORKKELI, L. (2020)  
國際創業和營銷公司的數字化。國際營銷  
評論, 37 (3), 第 471-492 頁。

[35] WESTERLUND, M. (2020) 在線中小  
企業的數字化、國際化和規模化。技術創  
新管理評論, 10 (4), 第 48-57 頁。

[36] WITTKOP, A. 和 WAGNER, R. (2018)  
數字化如何改變創業公司的國際化：理論  
考慮和經驗證據。知識經濟中的管理動態,  
6 (2), 第 193-207 頁。