

From Awareness to Action: Entrepreneur-Driven Digital Strategies and Digital Competency

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Abstract

The effective integration of digital tools and Information and Communication Technologies (ICT) has become increasingly critical for enhancing the operational efficiency and competitiveness of small and medium enterprises (SMEs). Digital transformation among SMEs is increasingly shaped by the strategic choices made by entrepreneurs themselves. This study investigates the level of digital strategies and digital competency among SMEs in Selangor. Through a quantitative research design, data was collected from 597 SME entrepreneurs through a structured survey. The instrument measured multiple dimensions including digital awareness, strategic technology adoption, training engagement, integration of digital tools, and corresponding business impacts such as revenue growth, customer reach, and operational efficiency. Descriptive analysis indicated that the majority of entrepreneurs in Selangor have adopted a strategic approach in implementing digitalisation and have demonstrated a clear future-oriented outlook in terms of technology and management. Key strategies observed include the use of e-commerce platforms, targeted digital marketing, automation of back-end processes, and leveraging social media for customer engagement. However, the level of digital implementation varies based on firm size, sector, and location, with micro-enterprises facing greater constraints in resources and digital knowledge. This study highlights the importance of proactive, self-directed strategies in driving digital competency and resilience. The study findings also provide valuable insights for entrepreneurs, support agencies and policymakers to better understand the internal dynamics of digital adoption and to design more responsive interventions that align with the realities of SME decision making.

Keywords: Digital Literacy, ICT Adoption, Strategic, Entrepreneurs, SMEs

Introduction

In the current digital economy climate, the effective integration of Information and Communication Technology (ICT) and digital tools has become an essential requirement for maintaining sustainability and competitiveness of small and medium-sized enterprises (SMEs). The digitalisation process among SMEs now relies not only on external support but rather is increasingly being driven by internal strategic choices made by entrepreneurs themselves. This is particularly relevant in developing countries such as Malaysia, where SMEs contribute a significant share to the GDP and the employment market. As such, making sense of entrepreneur-driven digital strategies offers valuable insights towards enhancing firm performance and resilience. This study examines how digital strategy related entrepreneurial decisions and actions are linked to business outcomes among SMEs in Selangor.

The dynamic changes in the global business landscape, especially in the current digital climate, have created a wide range of challenges and opportunities for entrepreneurs, including for those in Selangor. Since the early 2000s, the world has witnessed a transition from manual to digital processes, irreversibly reshaping the way businesses operate and interact with customers. This transformation involves not only the elements of technology, but also the changes in prevalent business models and social interactions, making it such that an understanding of digitalisation becomes critical to entrepreneurial success (Weimar et al., 2025). Although many digital platforms have been introduced, a lack of pertinent knowledge and skills among entrepreneurs hinders them from fully leveraging these technologies. The specific challenges faced by entrepreneurs in Selangor in the process of digitalising their businesses mirror those of many other countries undergoing similar paradigm shifts (Martjan et al., 2025). The key problem statement addressed in this study concerns the limited understanding and support among entrepreneurs in Selangor towards adapting to digital change, as well as the obstacles that prevent them from improving their digital capabilities.

Thus, the aim of this study is to explore in depth the digitalisation strategies adopted by entrepreneurs in Selangor. Through the development of a clearer understanding of this specific context, it is hoped that more effective approaches can be designed to assist entrepreneurs in addressing digitalisation strategies (Naibaho et al., 2025). This study holds significant academic and practical value. Academically, this study contributes to the literature on business digitalisation, particularly in the context of developing nations such as Malaysia, which remains relatively underexplored in a systematic manner (Ortega et al., 2025). While practically, the findings of this study are expected to provide targeted guidance and strategies for Selangor's entrepreneurs in planning and implementing their digitalisation initiatives, thereby enhancing their business competitiveness in an increasingly competitive market (Tohănean et al., 2024). This collective approach is crucial to ensuring the continuity and success of entrepreneurial ventures in this digital era, while also contributing to broader economic growth at both the state level in Selangor and nationally in Malaysia (Falahat et al., 2022).

Literature Review*Digital Transformation and SMEs*

Digital transformation refers to the adoption and integration of digital technologies that change the whole means by which businesses operate and deliver value to their customers. For SMEs, this transformation often includes adopting e-commerce, digital marketing, data

analytics, automation, and the use of cloud computing. However, SMEs will then come to face unique challenges arising from this necessity, such as financial constraints, a lack of digital skills, and the absence of a clear strategic direction (OECD, 2021).

Entrepreneurial Agency and Digital Strategy

Entrepreneurial agencies refer to the proactive role entrepreneurs play in shaping the direction of their businesses. In the context of digitalisation, this involves the ability to identify opportunities, acquire digital competencies, and implement relevant digital tools. Entrepreneur-driven strategies such as the use of digital systems, social media optimisation, and operational automation are often decisive factors in the success of SMEs (Vu et al., 2020). According to the National Library of Malaysia's Digitalisation Policy (2009), digitalisation is a process of converting knowledge sources and information from printed or analogue formats—whether audio, video, text, graphic, and so on into digital form so that it can be catalogued, easily retrieved, and distributed electronically. In relation to this study, the government has already begun to recognise the importance of SMEs achieving long-term and broad-based economic development (Telukdarie et al., 2023). Consequently, business digitalisation strategies have been developed to foster global economic growth, especially for entrepreneurs and SME operators. The first strategy is digital marketing. As explicated by Ramli et al. (2021), digital marketing is an innovative market strategy that can help in penetrating markets quickly and at a low cost. Today, various digital marketing platforms are widely adopted, particularly social media networks such as Facebook, Instagram, and TikTok. In terms of communication, applications such as WhatsApp Business API and Telegram serve as primary platforms for connecting individuals. Not to be forgotten are the notable E-commerce websites and applications popular among the public—such as Lazada, Shopee, and Carousell—which also play a leading role. According to Daud et al. (2022), marketing via social media channels provides the potential to reach wider markets, especially through celebrity influencers with large followings. For instance, many entrepreneurs on Instagram choose celebrities or influencers with a significant follower count to market their products. This strategy, as Daud's research further explains, can expand business reach while strengthening brand identity. The most popular and effective method employed by these influencers is the 'reviewing method' of products in a language that resonates with followers, such as Malay, locally.

Cybersecurity is another strategy essential to advancing the national technology usage level. Husin and Roslan (2021) observe that although the country is already in the Fourth Industrial Revolution stage, entrepreneurs' mastery of the required modern technology remains unsatisfactory, though in principle, the Fourth Industrial Revolution can facilitate and ease daily life while expanding the national economy, services and hospitality sectors. Therefore, it is a priority for entrepreneurs, especially SME operators, to master digital technology to transform their businesses through digitalisation. As quoted by Jalil et al. (2023), Malaysia recorded an overall Asia-Pacific AI Readiness Index score of 51.7% in 2021, marking a milestone in the country's involvement in AI technology development.

Additionally, website and e-commerce development strategies as detailed by Omar et al. (2022), noted that consumers prefer ongoing online marketing through platforms like Facebook, Instagram, and WhatsApp for dissemination of information on marketed products. This approach yields substantial benefits, especially from social media markets that generate

higher returns. Ultimately, this shift from conventional to virtual concepts benefits the national economy transformation paradigm and ensures national readiness to face global economic challenges (Omar et al., 2022).

Methodology

Research Design

A cross-sectional quantitative design was employed to examine the level of entrepreneur-driven digital strategy efficacy and digital competency.

Sample and Data Collection

A total of 597 SME entrepreneurs in Selangor were selected via stratified random sampling, covering various sectors including retail, manufacturing, services, and agriculture. Data was collected through structured questionnaires administered online and in person between February and May 2025. The study was conducted across six selected districts in Selangor; namely, Sabak Bernam, Hulu Selangor, Kuala Selangor, Petaling Jaya, Subang Jaya, and Shah Alam, to ensure adequate representation from rural, semi-urban, and urban areas.

Research Instrument

The questionnaire was developed based on previous literature references and adapted to the local context. It covers key areas such as technology adoption levels, digital competency, digital challenges, support needs, and entrepreneurs' digital strategies. Content validation was carried out by two subject-matter experts in entrepreneurship and digitalisation.

Data Analysis

Descriptive statistics were used to profile respondents and analyse patterns of digital strategy and digital competency. Data was processed using the Statistical Package for the Social Sciences (SPSS) software.

Findings

Descriptive Analysis

The gender distribution of the 597 respondents making up the sample of this study was almost equal: 50.3% male and 49.7% female. In terms of age, the majority were between 30 and 39 years old (37.9%), followed by 40–49 years (24.5%) and 20–29 years (19.8%). Only a small proportion were under 20 (1.2%) or over 60 (3.4%), indicating higher participation among adults actively engaged in entrepreneurship.

Ethnically, the sample was predominantly Malay (86.9%), with Chinese (9.9%) and Indian (3.2%) entrepreneurs forming a minority, reflecting Selangor's SME demographic profile. Marital status data showed that most respondents were married (71.2%), while 20.6% were single, 5.7% were single mothers and 2.5% were single fathers, indicating diverse social responsibilities. In terms of education level, the majority had completed upper secondary education, specifically SPM (35.5%), followed by diploma holders (23.3%) and bachelor's degree holders (17.8%). A small proportion had advanced qualifications such as master's degrees (4.4%) and PhDs (0.8%).

Regarding business registration with the Companies Commission of Malaysia (SSM), sole proprietorships grabbed the majority status (65.3%), followed by private limited companies

(Sdn. Bhd.) at 20.4%, and partnerships at 13.2%. Sector-wise, food and beverage businesses were most common (44.2%), far exceeding trade/wholesale (17.3%) and manufacturing (6.4%). Other sectors such as agriculture, IT, professional services, education, and finance existed in smaller proportions. This reflected an entrepreneurial orientation that leaned more towards sectors that are high impact and basic needs based. Table 1 shows the breakdown of the sample distribution's demographic profile in detail.

Table 1
Demographic Profile

Item	Frequency	Percentage
Gender		
Male	300	50.3
Female	297	49.7
Age		
Below 20 years	7	1.2
20-29 years	118	19.8
30-39 years	226	37.9
40-49 years	146	24.5
50-60 years	80	13.4
Above 60 years	20	3.4
Ethnicity		
Malay	519	86.9
Chinese	59	9.9
Indian	19	3.2
Marital Status		
Single	123	20.6
Married	425	71.2
Single Mother	34	5.7
Single Father	15	2.5
Education Level		
SRP/ PMR/ PT3	22	3.7
SPM	212	35.5
Certificate/ STPM/ TVET	86	14.4
Diploma	139	23.3
Bachelor's Degree	106	17.8
Master's Degree	26	4.4
Doctor of Philosophy (PhD)	5	.8
Others (please state)	1	.2
Type of Business Registration under the Companies Commission of Malaysia (SSM)		
Sole Proprietorship	390	65.3
Partnership	79	13.2
Limited Liability Partnership	6	1.0
Private Limited / Sdn Bhd	122	20.4
Business Sector		
Trade/ wholesale	103	17.3
Food and Beverage	264	44.2
Professional Services	28	4.7
Manufacturing	38	6.4
Agriculture, Fisheries and Plantations	40	6.7
Information Technology and Communication	17	2.8
Finance and Insurance	21	3.5
Real Estate and Construction	18	3.0
Transportation and Logistics	32	5.4
Education and Training	19	3.2

The analysis of the digital strategy findings showed generally high agreement across all business digital strategy statements. The highest average score was for DS6—“My company encourages collaboration to enhance digital capabilities”—with a mean of 4.93 (sd = 1.38), reflecting strong commitment to collaborative digital culture. This was closely followed by DS1 (mean = 4.92, sd = 1.34) and DS7 (mean = 4.88, sd = 1.38), indicating recognition of digitalisation as a key strategic priority and a proactive approach to adopting latest technologies. Other high-scoring items included DS12 (mean = 4.83, sd = 1.42) and DS11 (mean = 4.78, sd = 1.44), which focused on cost control and maintaining existing technologies. E-commerce (DS9) and investment in emerging technologies such as cloud computing and big data (DS10) both scored a mean of 4.67, signalling readiness to leverage advanced platforms for sales growth and operational efficiency.

Items on monitoring digital trends (DS2), prioritising digital projects (DS3), and updating digital strategies (DS4) scored a mean of between 4.64 and 4.71, depicting that strategies are guided by awareness of changing business landscapes rather than reactive measures. Overall, the standard deviations ranged from 1.34 to 1.46, indicating moderate variation in agreement levels among respondents but still remaining within the margin of a positive trend lean. In a nutshell, the findings show that the majority of entrepreneurs and SMEs have already adapted strategic approaches towards digitalisation while displaying a forward-thinking orientation in the aspects of technology and the management of their businesses.

Table 2

Digital Strategy

Item		Mean	Standard Deviation
DS1	Digitalisation is among the most important elements in my/our business strategy.	4.92	1.34
DS2	I/We constantly research the latest trends in business digitalisation to remain competitive.	4.66	1.44
DS3	Digital projects are given higher priority in my/our business activity.	4.64	1.43
DS4	I/We continually update and refine the company's digital strategy.	4.71	1.44
DS5	Strategic partners enable me/us to gain digital knowledge that can enhance my/our operational performance.	4.78	1.43
DS6	My/Our company encourages collaboration to strengthen the digital capabilities of my/our businesses.	4.93	1.38
DS7	To stay ahead in technological advancement, my/our company proactively uses and implements the deployment of latest technologies in my/our processes, products, and information systems.	4.88	1.38
DS8	I/We use digital tools and resources to manage tasks and communicate efficiently within the company.	4.77	1.41
DS9	I/We have implemented an e-commerce platform to boost sales.	4.67	1.46
DS10	I/We plan to invest in new technologies such as cloud computing and big data.	4.67	1.43
DS11	I/We always ensure that the technological equipment in the business is in good condition and up to date.	4.78	1.44
DS12	I/We adopted effective cost management strategies to ensure expenses are well controlled.	4.83	1.42

For the digital competency, the findings indicate that the level of digital competency among the entrepreneurs surveyed is high. The item with the highest mean score is “I/we believe that working in a digital environment encourages collaboration within the company” (DC12), with a mean of 4.97 and a standard deviation of 1.41. This reflects strong confidence among entrepreneurs in the collaborative value fostered by digitalisation. Close behind are DC11, which measures entrepreneurial thinking and commercialisation in the digital era (mean = 4.88, sd = 1.41), and DC10, which highlights the belief in the potential of digital media to enhance business performance (mean = 4.87, sd = 1.40). Collectively, these three items suggest that attitudes and beliefs towards the digital environment represent key strengths in entrepreneurs’ digital competency. In terms of technological implementation, respondents also demonstrated a high level of capability. For example, the use of high-speed internet access (DC5) recorded a mean score of 4.86 (sd = 1.36), while the provision of online stores (DC6) and digital data storage (DC4) scored 4.76 and 4.78 respectively. This indicates that basic infrastructure, such as internet connectivity and digital support systems, is already well established and widely used among entrepreneurs. Interestingly, readiness to adapt to technological change (DC8, mean = 4.78) and awareness of the importance of digital media for marketing purposes (DC9, mean = 4.82) were also rated highly, suggesting that most entrepreneurs are not only responsive to change but also proactive in leveraging digital opportunities. Nevertheless, while all items showed positive scores, DC1 related to the regular implementation of new digital products and services recorded the lowest mean (4.63) compared to other items. Similarly, DC2 and DC7, which are related to the integration of third-party digital offerings and the provision of a digital company profile, also scored relatively lower. This may suggest that aspects of continuous innovation and the active updating of digital presence still require further improvement.

Table 3

Digital Competency

Item		Mean	Standard Deviation
DC1	I/we regularly implement new digital products and services	4.63	1.41
DC2	The company’s IT department integrates the latest digital offerings from third parties, such as digital payment systems, customer relationship management systems, and so on	4.69	1.41
DC3	I/we use the most up-to-date IT infrastructure	4.72	1.43
DC4	I/we store all data digitally	4.78	1.39
DC5	I/we have access to gigabit-speed internet	4.86	1.36
DC6	My/our company has set up an online store to make it easier for customers to conduct digital transactions	4.76	1.46
DC7	My/our company already has a digital profile	4.64	1.47
DC8	My business can adapt to changes in digital technology	4.78	1.43
DC9	Digital media is important for my/our company as a platform for marketing our products and services	4.82	1.43
DC10	My/our company believes that the use of digital media can help the company conduct business more effectively	4.87	1.40
DC11	I/we have entrepreneurial and commercialisation thinking in the digital environment	4.88	1.41
DC12	I/we believe that working in a digital environment encourages collaboration within the company	4.97	1.41

Conclusion and Implications

The findings confirm that entrepreneur-driven strategies play a critical role in digital transformation. Proactive adoption and integration of technology are associated with improved revenue, better customer engagement, and operational efficiency. However, variations in implementation reveal a persistent digital divide, particularly among micro-enterprises, highlighting the need for differentiated support strategies based on firm size, digital readiness, and sector context. The role of entrepreneurs as digital leaders is a vital one. Their vision, attitude, and commitment significantly influence the digital maturity of their businesses. While government programmes and ecosystem support remain important, it is the entrepreneurs' own agency that emerges as the most influential determinant of digital success. This study also reinforces the importance of entrepreneur-led digital strategies in enhancing SME performance. Digital competence is not solely dependent on external factors but is deeply embedded in the entrepreneur's proactive behaviour and strategic outlook. Policymakers and support agencies should recognise SME diversity and focus on building internal capacity through training, mentoring, and access to digital tools. Future research could adopt a longitudinal design and explore the qualitative dimensions of digital transformation.

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