

The Impact of Digital Technology, Digital Capability and Digital Innovation on Small Business Performance

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Abstract: Nowadays, IT plays a key role for SMEs in boosting sustainable business performance. Unfortunately, Malaysian SMEs have been confronting some challenges such as failure to adapt to technology, rapid technology change, and high technology cost. It was claimed that Malaysian SMEs might be wiped out soon unless they master digital technology. To fill this gap, this paper aimed at identifying the level and examining the relationship between digital technology, digital capability, and digital innovation toward Batu Pahat's business by using the quantitative method focused on survey questionnaire to collect, analyze gather data and using SPSS software to test the hypotheses from the shops in Batu Pahat district. Some 120 online questionnaires were collected. The stratified sampling technique was used in this research. This research found a strong positive relationship between digital technology, digital capability, and digital innovation toward business performance. Digital has both tangible and intangible benefits that will help companies profit and deliver customer expected outcomes.

Keywords: Digital technology, Digital capability, Digital innovation, Small business

1. Introduction

Retailers and businesses are involved in selling across different channels, so everyone can purchase products and items in shops or online. For the simplest definition, retail actually is the selling of various products and services to consumers with the intention to make a profit. Nowadays, most people stay at home and shop by using their computers, laptops, mobile devices, tablet computers and shop online. Online retail is a form of electronic commerce that enables consumers to purchase goods or services directly from a retailer over the Internet using a web browser. Customers can easily find a product depending on their interest and needs by visiting the retailer's website or blog by searching various types of alternative vendors to search for their products and services. The

Websites will display the same product's availability and pricing at different e-retailers for customers to choose from. It brings a lot of conveniences for customers to decide without spending too much time surveying the product. Nevertheless, with e-commerce increasing, the popularity of the malls steadily decreased, hitting a 20-year low in revenue in 2019. That said, several digitally native companies are also testing in-person shopping in modern shopping center-type environments.

With rapid technology development, small and medium enterprises (SMEs) have succeeded in adopting change by digital technologies to allow big market changes, such as growing customer loyalty and interaction, streamlining processes and developing new business models, or to risk destruction by rivals that do so (Fitzgerald *et al.*, 2014). Organizational performance is indeed the way companies are working to achieve their goals. It is a quantifiable metric to demonstrate business success. Organizational performance may be measured by the quality and effectiveness of the organization in achieving its specified objective (Malik & Sattar, 2017). Digital technologies consist of digital technology, digital capability, and digital innovation that link with organizational performance (Khin & Ho, 2018).

Technology plays a vital role in controlling the climate for increased efficiency, creativity, and business model growth. Firms are attempting to respond to emerging technology developments and have instituted expenditure optimization processes to meet new business opportunities (Thamhain, 2015). Digital technology influences organizational results (Mumford, 2015). Digital technology is the consequence of internal advancement while internal advancement is the result of internal power. Technology can only enhance efficiency or boost organizational performance if it is successfully paired with other resources by human resources or whether it is done effectively, and technology is used productively and ethically (Dauda & Akingbade, 2016). Therefore, there is also a strong relationship between digital technology and firm performance (Mumford, 2015).

In the case of COVID-19, lockdowns around the world, the closing of sectors such as leisure, transport, and retail have contributed to major closures in businesses around the world and more disturbances, along with a major rise in unemployment predicted in the following months. These constraints have more drastic impacts on small and medium-sized enterprises (SMEs) than on big and multinational businesses (Papadopoulos *et al.*, 2020). In addition, small companies and their founders face difficulties in times of crisis (Shane, 2011). At the same time, they seek potential prospects due to their scale and versatility and develop evolving strategies for the profitable core business. (Davidsson, 2015; Shepherd & Williams, 2018). Small and medium-sized businesses (SMEs) use Emerging Technology (digital technology or DT) to deal with the effects of extreme incidents and therefore also in pandemics such as COVID-19.

Digital technology digitizes and crosslinks the mechanism of value formation. Evidence exists in the literature that appropriate strategic adoption of DT can increase competitiveness, productivity, and performance (Chan *et al.*, 2018). The use of DT in serious disturbances may allow people to remain connected and promote their intelligent work environment, but may also be linked to possible infringements of stakeholder privacy (the right to avoid the disclosure of personal information to others) (Flyverbom *et al.*, 2019; Vial, 2019). Therefore, SME use of a socio-technical approach is among the emerging technology initiatives to resolve problems related to the digital technology-based organization of work output as a response to COVID-19 when sustaining operations in SMEs (Papadopoulos *et al.*, 2020).

Digital capacity defines the company's ability to assemble and execute IT-based tools in conjunction with the resources of other companies (Nwankpa, & Roumani, 2016). Businesses with the ability to manage their IT tools are ideally equipped to collect customer information, exchange expertise, and enhance business operations. As a result, the effect of IT capabilities on corporate performance has gained a lot of favorable exposure, with research showing that firms with superior IT capabilities appear to outperform their rivals (Mythas *et al.*, 2011). The digital capability allows

companies to build a consumer niche and distinguish their product offerings in an intensely dynamic business climate. Companies with higher digital capabilities are more capable of mobilizing, distributing, and leveraging IT resources with other current resources to achieve improved efficiency (Nwankpa & Roumani, 2016). Yet there also have been researchers who continue to challenge the direct influence of digital innovation on firm efficiency and the suggestion that superior digital capabilities will create major competitive advantages for organizations (Chae *et al.*, 2014). According to Nwankpa and Roumani (2016), results indicate the influence of digital capability as a primary antecedent on firm output can be mediated by digital transformation. This enables everyone to advance their expertise of how businesses can use digital capabilities to achieve performance.

Innovation is the creation or introduction, assimilation, and utilization of value-added novelty in the social and economic fields; the transformation and extension of goods, services and markets; the invention of modern methods of production; and the creation of new management structures (Crossan & Apaydin, 2010). However, digital innovation is an innovation made possible by or caused by digital technology (Henfridsson *et al.*, 2014). Recent developments in technology such as cloud, wearables, Internet-of-things, smartphones, social networking, and market analytics enable companies to have unparalleled potential to innovate (Sedera *et al.*, 2016), but companies are also not immune to innovation failures. The rise and development of companies such as Uber, Airbnb, and Alibaba.com are strongly attributed to the advances of new innovations (Sedera *et al.*, 2016; Tan *et al.*, 2016) and the application of information technology (IT) (Harris *et al.* 2012; Weiß and Leimeister 2012). Innovation of emerging technology is said to be notoriously complex and difficult for SMEs to master. In addition, emerging technology advancement requires multiple and overlapping adaptations of infrastructure, staffing, community, decision-making, connectivity, and incentive processes (Lokuge *et al.*, 2018b). Moreover, the non-exclusivity of emerging technology, where rivals will emulate IT developments (Nylén & Holmström, 2015), ensures that companies must be able to constantly adjust their tools and policy settings to gain a competitive edge (Avedillo *et al.*, 2015).

It is also important to note that the success stories of digitalization (Booth *et al.*, 2016) have shown that not only technological modernity but also IT decision-makers and corporate culture play a key role in technology introduction (Nylén & Holmström, 2015). Indeed, the Internet and open standard technology offer quick access to big data, perceived to provide a vast volume of knowledge, input, and expertise. These resources also promote exchanging of ideas, knowledge sharing, and cooperation between an organization as well as its own ecosystems (Del Giudice & Maggioni, 2014; Scuotto *et al.*, 2017). These technologies enable businesses to adopt an open approach by creating shared and networked ties and allow them to collect distributed data (Popa *et al.*, 2016). ICTs are also considered to have a significant role in shaping more appropriate market processes, as these techniques can generate specific and distinctive properties (Scuotto *et al.*, 2017).

Business is particularly important for the economic development of a country as employers provide both goods, services, and work prospects. Small enterprises are often relevant because they provide rewards besides business owners and create strong employment with greater job satisfaction than roles in larger, conventional multinational companies. Nowadays, according to Costa *et al.* (2016), it is well recognized in the literature that business enterprises often face particular difficulties in their internationalization processes such as the economy, tax compliance, and cash flow (business owner problem). However, a corporate entity is an essential component of the economic development of a nation. Economic growth in many less developed countries is impacting the growth of their SMEs. Developed nations often adopt policies to improve the business climate for SMEs by reducing the market and institutional constraints that hinder their growth. It has been found that a few factors can affect business performance. Characteristics of the organizational strategy may have a major effect on training and organizational effectiveness, including an increase in gross sales, return on capital, customer retention, or success throughout operations and business expenditure (Asiegbu *et al.*, 2012; Farrell, 2000; Subramanian & Gopalakrishna, 2001). Next, social media can affect business

performance; IT such as Web 2.0 technologies has the potential to facilitate connectivity and cooperation inside and between organizations, thus facilitating accelerated internationalization of businesses and the globalization of corporate activities (Bell & Loane, 2010). Therefore, business performance is very important, because it can increase the economic growth rate and GDP. In less developed countries, business has a significant and huge impact on GDP (Atiase *et al.*, 2018). According to the report by the Department of Statistics Malaysia (2019), the performance of SMEs GDP shows that Malaysia's SMEs contribution to GDP increased from 5.4 percent in 2016 to 7.1 percent in 2017 and slightly decreased to 6.2 percent in 2018 as compared to the previous year.

With developments in digital technology, digital capability, and digital innovation, it is important to boost Batu Pahat's business performance. Understanding the underlying forces and influences of digital technology, skills and creativity will enable businesses to benefit from the technical potential and facilitate both the pace of growth and the market success of Batu Pahat. Not only that, digital technology and digital capacity for digital innovation are important for a business. This is because digital has both tangible and intangible benefits that will help companies make a profit and deliver the results customers demand. It is important for a business to recognize and realize the impact of digital innovation on improving efficiency and business operation performance. As a result, the more businesses evaluate the full benefits of digital innovation and how it can be driven, the more likely they will be to benefit.

Thus, this study will identify the level of digital technology, digital capability, and digital innovation toward Batu Pahat's business performance and also examine the relationship between digital technology, digital capability, and digital innovation towards Batu Pahat's business performance.

2. Literature Review

2.1 Definition of Micro Enterprise Performance

Small and medium-sized enterprises (SMEs) play a critical role as a driving force in economies around the world, especially in developed and emerging markets. Small and medium-sized businesses dominate intact business institutions around the world. From Asia to Africa, SMEs are the key to creating wealth to improve living conditions. Company performance is an indicator of how effectively a firm can accomplish its goals and priorities relative to its main rivals (Cao & Zhang, 2011). Generally, superior firm performance is defined by competitiveness, development, and consumer valuation (Cho & Pucik, 2005).

2.2 Digital Technology

Digital technology is viewed as one factor behind the enhanced business performance. Digital technologies indicate the widespread distribution of new technological projects requires comprehensive access to software resources. Digital technologies have transformed how companies and customers communicate and share information (Yadav & Pavlou, 2014). For example, Web 2.0 transformed how people access information, communicate with each other, and experience products and services.

2.3 Digital Capability

Digital "capability" means the ability or skill required to conduct a certain task (Day, 1994; Drucker, 1985; Li & Calantone, 1998) or, in other terms, "a collection of abilities and expertise needed to accomplish a target." Digital capabilities can be considered to be the skills needed to extend beyond pure IT to include specific technologies, such as social media or mobile, as analytical skills to drive value from big data, and we can also conceptualize them as a digital outcome or operation.

2.4 Digital Innovation

What is digital innovation? Innovation has changed the business landscape. In the past, the first Internet shopping pages were mostly bad versions of written mail-order catalogs. E-commerce has also grown, widening the scope of digital business creativity. Online stores, such as Amazon and Zappos today provide more than comfort and affordable items; by selling suggested solutions as well as brands, they provide genuinely innovative consumer goods. Investments in online digital technology have also allowed mainstream businesses, such as taxi companies and grocery store chains, to achieve a strategic competitive edge. Digital innovation may also be described as creativity incorporating digital and physical components to produce a new product. Innovation is a new concept, a new method of behaving, or a new thing for a person.

2.5 Hypotheses Development

This research will test the following three hypotheses:

H1: Digital Technology has a significant relationship with business performance.

H2: Digital Capability has a significant relationship with business performance.

H3: Digital Innovation has a significant relationship with business performance.

2.6 Conceptual Framework

The conceptual framework for this research is illustrated in Figure 1:

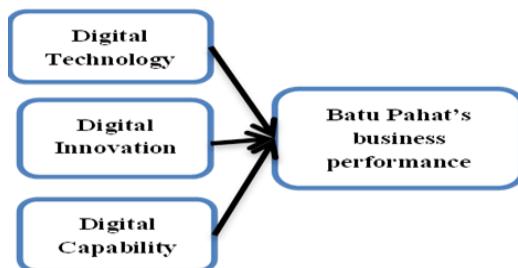


Figure 1: Conceptual framework of digital technology, innovation and capability toward small business performance

3. Research Methodology

3.1 Research Design

In this research, we are using the quantitative method to collect, analyze and survey gathered data to test the hypotheses on the shops in Batu Pahat district to evaluate their performance. The quantitative method is focused on surveys, questionnaires, and SPSS software. The measurement tools involve a “five-point Likert scale” (ranging from 1 = strongly disagree to 5 = strongly agree). Not only that, but we also collected data via various methods through articles, journals, books, from google scholar, science direct, and so on.

3.2 Population and Sampling

Our target population in this study is the small business enterprise community in Batu Pahat district that has been chosen for performance evaluation. Based on SME Corp. Malaysia (2020) and

Department of Statistics Malaysia (2020), the total small business enterprise in Batu Pahat is 180 enterprises. However, a sample is any part of the fully defined population and it is the number of items that will be chosen from the population. The sample will be adopted in the research when the population is large for the research. The sample size must fulfill the requirement of representativeness, flexibility, efficiency, and reliability. According to the sample determination table of Krejcie and Morgan (1970), the sample size of this research is 120 which almost matches the population of 180 in the Batu Pahat area. These 120 respondents need to answer the questionnaires and the questionnaires will be collected after completion by respondents. The sampling we used was stratified sampling which is a type of sampling method in which the total population is divided into smaller groups or strata to complete the sampling process.

3.3 Research Instrument

In this research, we chose to use questionnaires to collect data. The objective of this questionnaire is to test the hypotheses from the shops in the area of Batu Pahat to evaluate their performance. Descriptive studies will be carried out on data collected through the questionnaire.

The online questionnaire was distributed to respondents in the area of Batu Pahat to evaluate the business performance and the respondents of this study will be the business enterprises chosen in Batu Pahat for performance evaluation.

The questionnaire is split into three sections, namely Section A, Section B, and Section C. Section A elicits demographic details of the respondents, consisting of gender, age, ethnicity, birthplace, and monthly income of the target respondents. The question would be in the possibility of multiple choices. Section B will ask respondents questions on their opinion regarding small and medium-sized enterprises (SMEs) and digital technology, capability, and innovation. Section C will be asking about “do you think that digital technology can influence business performance?” This section will also ask whether “digital capability and digital innovation can influence business performance.” All of the questions in Section A, Section B, Section C, will be given in the form of a Likert scale with five stages from strongly agree to strongly disagree.

3.4 Data Collection

In this research, the data will be collected using a survey by giving out some questionnaires to be collected, with questions on digital technology, innovation, and capability toward Batu Pahat’s business performance.

(a) Primary Data

In this research, we chose to use the quantitative method to collect, analyze and survey gathered data to test the hypotheses from the shops in the area of Batu Pahat to evaluate company performance. The quantitative method is focused on surveys, questionnaires, and SPSS software.

(b) Secondary Data

We used the secondary data gathering method to collect data in the literature review regarding digital technology, digital capability, and digital innovation toward business performance. This will provide a lot of useful information that can be developed in this research.

3.5 Data Analysis

The aim of this study is to collect data and knowledge from the target respondents. As mentioned earlier, the method for interpretation of data is by computer software namely the IBM Statistical Packages for the Social Sciences (SPSS) software. The data analysis method used in this study for the first objective (to identify the level of digital technology, digital capability, and digital innovation toward Batu Pahat’s business performance) is the descriptive method. Besides, the second objective

(to examine the relationship between digital technology, digital capability, and digital innovation toward Batu Pahat's business performance) the method we use is the correlation method and ANOVA test.

4. Results and Discussion

The results and discussion section has been divided into 4 sections starting with analyses and presenting the results of each section. Section A will ask about basic knowledge in digital technology. Next, Section B begins with the demographic analysis. However, Section C will use the “five-point Likert scale” measurement tools (ranging from 1 = strongly dissatisfied to 5= strongly satisfied) for respondents to fill up their own opinion on SMEs business performance. The last Section D will use the “five-point Likert scale” measurement tools (ranging from 1 = strongly disagree to 5 = strongly agree) for respondents to fill up their own opinion on how digital orientation, digital capability, and digital innovation can influence business performance.

4.1 Descriptive Analysis

Some 150 respondents were involved in this research. So, 150 questionnaires were distributed by using Google form; some 120 valid responses were processed for data analysis, representing an effective response rate of 80% for this research. After collecting and combining all the data, we used the SPSS software to process the results.

(a) Demographic Analysis of Respondent

The percentage of respondents who apply digital technology in business is 112 which is 93% and 8 of the respondents (7%) did not apply digital technology in business. The number of males is 69 (57.5%) and 51 female respondents (42.5%). The percentage of respondents aged 20 and below is 2.5%. Respondents aged between 21-30 years old comprised 50.0%. Those aged between 31-40 years were 24.2% and 41-50 years old were 18.3% and 50 and above comprised 5.0%. The percentage of Nationality is 100% were Malaysian. The percentage of the Malay respondents is 18.3%, Chinese are 68.3%, Indian are 11.7% and other races formed 1.7%. As for marital status, the percentage of single is 55.8%, married is 34.2%, divorce is 8.3% and others is 1.7%. The percentage of educational background breakdown was: no formal education (20%); high school (52.5%), college (9.25%) and vocational training (6.7%), and bachelor's degree (31.7%). The percentage of monthly income for below RM1, 000 is 11.7% and for income between RM1, 000 to RM1, 999 is 16.7%. Monthly income from RM2,000 to RM2, 999 is 34.2%. For income above RM3, 000 it is 37.5%. As for employment status, the percentage employed full time is 50.8%, percentage of employed part-time is 18.3%. The percentage of a contract is 13.3% and the percentage of the owner is 17.5%. For a year of business below 5 years is 54.2%, year of business between 6-10 years is 27.5% and year of business above 10 years is 18.3.

(b) Reliability Analysis

The reliability test for the pilot test has 22 items. For the first variable for the reliability test which is “Digital Technology”, there were 4 items and the Cronbach’s alpha was .664. It was regarded as acceptable. The second variable for the reliability test which is “Digital Capability” involved 5 items and Cronbach’s alpha was .677. It was regarded as acceptable. The third variable for the reliability test which is “Digital Innovation” had 7 items and Cronbach’s alpha was .763. It was regarded as acceptable. The fourth variable for the reliability test which is “Small and medium-sized enterprises (SMEs) business performance” involved 6 items and Cronbach’s alpha was .737. It was regarded as acceptable. However, the Cronbach’s alpha for overall variables achieved a value of .889 or “good” internal consistency.

(c) Normality Test

According to Table 1, the data of New dependent is normal because the “sig” value in Kolmogorov-Smirnov shows at 0.052 which is higher than the Sig. value of 0.05; therefore, it was regarded as normally distributed. However, the data of New IV_1, New IV_2, NewIV_3 showed a non-normal distribution because the “sig” in Kolmogorov-Smirnov shows 0.001, 0.021, and 0.001 value which falls below the Sig. value of 0.05. Therefore, three of these NewIV_1, 2, 3 are regarded as a non-normal distribution. In general, the overall data regarded as a non-normal distributed as the Sig. value is 0.000 (Sig. value = 0.000 < 0.05).

Table 1: Tests of normality

	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
NEW_DEPENDENT	0.081	120	0.052	0.983	120	0.122
NEW_IV1	0.111	120	0.001	0.966	120	0.004
NEW_IV2	0.089	120	0.021	0.972	120	0.015
NEW_IV3	0.109	120	0.001	0.967	120	0.005

4.2 Spearman’s Correlation Analysis

The coefficient value is between 0.456 to 0.558 where NEW_IV1 has the coefficient correlation value of 0.558 ($p < 0.01$); NEW_IV2 has a value of 0.456 ($p < 0.01$); NEW_IV3 has a value of 0.483 ($p < 0.01$). Based on this data, there is a positive relationship between digital technology, digital capability and digital innovation and business performance.

4.3 Regression Analysis

(a) Reliability Analysis

According to Table 2, R Square value reported that 39.7 percent of business performance is explained by digital technology, digital capability, and digital innovation.

Table 2: Model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.630 ^a	0.397	0.381	0.47955

(b) ANOVA

Table 3 gives the results for the ANOVA test for this research. It shows a significant predictor between digital technology, digital capability, and digital innovation toward business performance. From the result shown in Table 3, we can see the F value is a significant value because the p-value less than 0.05; that means digital technology, digital capability, and digital innovation are significant predictors of business performance.

Table 3: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	17.535	3	5.845	25.416	0.000 ^b
	Residual	26.676	116	0.230		
	Total	44.211	119			

4.4 Discussions

This research aimed at investigating whether there is a significant relationship between independent variables (digital technology, digital capability, and digital innovation) and the dependent variable (SME business performance). Based on previous results, all the independent variables have positive relationships toward the dependent variable which is small and medium-sized enterprises (SMEs) business performance.

(a) Digital Technology

Digital technology has a positive significant relationship towards business performance as the data were positively correlated (correlation coefficient = 0.558, $p > 0.05$) which show a moderate positive correlation. The correlation coefficient of Digital Technology was the highest relatively and slightly higher positive correlate relationship among other independent variables. According to Quinton *et al.* (2017), digital technologies have transformed how companies and customers communicate and share information. Therefore, the factors of Digital Technology had the strongest effect in predicting small and medium-sized enterprises (SMEs) business performance.

(b) Digital Capability

The digital capability has a positive significant relationship towards business performances as the data were positively correlated (correlation coefficient= 0.456, $p > 0.05$) which show a moderate positive correlation. The correlation coefficient of Digital Capability was lower relatively and slightly low positive correlate relationship among other independent variables. According to Christine (2018b), it can be expensive for a company to stay up-to-date with the latest and greatest technology; often large costs are involved with using the latest technology (especially for small businesses). Therefore, the correlation relationship between factors of Digital Capability and small and medium-sized enterprises (SMEs) business performance does not have a strong effect enough to predict performance.

(c) Digital Innovation

Digital Innovation has a positive significant relationship with business performances as the data were positively correlated (correlation coefficient = 0.483, $p > 0.05$) which showed a moderate positive correlation. The correlation coefficient of Digital Innovation was in the neutral relatively in positive correlate relationship among other independent variables. According to Nwankpa and Roumani (2016), innovation may be described as the development and exploration of new concepts, methods, procedures, goods, and services and it has long been an important trend of market planning literature. Therefore, the factors of Digital Capability were not having a strong effect enough to predict small and medium-sized enterprise (SME) business performance.

(d) Most Effective Factors in Business Performance

Results found that Digital Technology had the most effect on small and medium-sized enterprises (SMEs) business performance with a significance level of 0.000 and a Beta value of 0.379. According to Table 4, it has clearly shown that Digital Technology's beta value was the highest compared among other independent variables. Therefore, we can conclude that Digital Technology brings a significant effect on small and medium-sized enterprises (SMEs) business performance.

Table 4: Summary of regression results

Model	Significance Level	Beta Value
Digital Technology (NEW_IV1)	0.000	0.379 (Highest)
Digital Capability (NEW_IV2)	0.234	0.118
Digital Innovation (NEW_IV3)	0.032	0.216

5. Conclusion

This 21st-century society has been called the “technology society” all around the world. Digital technology start-ups with bright ideas are transforming our daily lives, especially in business. Automation, machine learning, and artificial intelligence will drastically reduce the number of available jobs in the near future, perhaps within 20 years. Many previous studies found that digital technology has brought a greatly significant impact on business performance. Hence, this research focused on examining and investigating the relationship between digital technology, digital capability, and digital innovation toward Batu Pahat’s business performance. We have developed an online survey to collect data and used SPSS software to calculate and analyze all the data and variables. We have carried out the demographic analysis, descriptive analysis, reliability test, normality test, correlation test, and regression test to find out the final result.

Three independent variables which are digital technology, digital capability, and digital innovation, and two objectives were obtained. The correlation test has computed that all the variables between independent and dependent variables had positive relationships as the hypotheses (H1, H2, and H3) are acceptable. Based on the regression test results, digital technology had the greatest influence on business performance with the highest Beta value showing that digital technology (beta = 0.379) had the lowest significant level of 0.000 compared with others variables.

Not only that, this research has highlighted the important contribution of digital technology provided information on developing technologies in business. Although it has some limitations such as data collection method, time-consuming, and so on, this research underscores the need for SMEs to increase digital technology, digital capability, and digital innovation mastery for enhanced competitiveness in a globalized rapidly changing market.

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