

EXPLORING THE UNDERLYING DIMENSIONS OF DIGITAL ENTREPRENEURSHIP AND COMPETITIVE ADVANTAGE OF SMALL AND MEDIUM ENTERPRISES (SMEs) IN NIGERIA

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Abstract

This study explored the effect of digital entrepreneurship and competitive advantage of SMEs in Nigeria. Specifically, the effect of digital knowledge base & ICT market, digital business environment & digital skills & e-leadership and entrepreneurial culture on competitive advantage of SMEs in Nigeria. According to a PwC study from 2021, a survey research design was used with a sample size of 394 participants from the states of Kano and Lagos. This sample size was obtained using Yamane's formula (1967). To ensure that the information was easily accessible, SMEs were chosen using a simple random sample technique. A well-structured questionnaire that was approved by management experts was employed as the instrument. KMO and Bartlett's test of sphericity and principal component analysis was appropriate at 0.824 with a reliability index of 0.870. SPSS was used to perform multiple regression analysis and hypotheses were tested at a significance level of 0.05. It was discovered that digital entrepreneurship through digital knowledge base and ICT market, digital business environment and digital skills and e-leadership and entrepreneurial culture have positive effect on marketing performance of SME's in Nigeria. As a result of the research, it has been determined that digital entrepreneurship, including its impact on the ICT market, digital knowledge base, digital skills, digital business environment, e-leadership, and entrepreneurial culture, positively impacts SMEs' ability to compete in Nigeria. SMEs in Nigeria are advised, among other things, to adopt digital entrepreneurship in order to surpass their competitors.

Keywords: effect, digital entrepreneurship, competitive advantage, SMEs, Nigeria.

1.1 Introduction

Digital technologies are evolving on the daily basis especially information and communication Technology (ICT) in particular are developing on a daily basis and have continued to assert their dominance across all business sectors worldwide. This phenomenon affects SMEs and other companies as well. No effective commercial transaction nowadays can be accomplished without utilizing some aspect of digital technologies. The rapid development of digital technologies with novel functions is changing market dynamics and altering

standard company strategies, structures, and processes (Bharadwaj et al. 2013). A variety of revolutions in the structure of businesses, industries, and socioeconomic connections have resulted from the adoption and proliferation of digital technologies among businesses (Marsh et al, 2017; Goldfarb & Tucker, 2019).

The incorporation of digital technologies, including email, websites, spreadsheet software, social networks, digital platforms, and other computer and mobile applications, has altered the organization's organizational structure, production processes, communication protocols, and contributed to the development of the firm's own digital knowledge. This led to improved input usage and innovation processes, improved communication and coordination amongst business employees, and simplified access to crucial information for decision-making and market expansion (Paunov & Rollo, 2016; Islam et al., 2018). This is especially true for internet-related technology, which, in addition to increasing a company's input use and innovation efficiency, greatly facilitates the gathering of data on administrative processes like business licenses, market and political risks, the structure of the tax system, tariffs and non-tariff measures, customer and competitor profiles, and other topics.

According to Aker and Fafchamps (2014), basic Internet technologies can fluidize market actor coordination, reduce price dispersion, make it easier to obtain formal financial institutions, and improve access to public services, all of which can be very beneficial to business operations (Cariolle, 2020). In fact, fundamental internet technologies like email streamline contacts with the government and bureaucracy, enhance communication between clients and suppliers, and reduce informational asymmetries as well as the financial and non-financial expenses related to a firm's bilateral transactions. In order to improve a company's market and global value chain positioning, more strategic technologies, such as websites, may be particularly helpful (Sadowski et al., 2002; Harrison & Waite, 2006). This will lower communication and information search costs to reach customers and suppliers.

The globalization through technology gives SMEs in Nigeria and abroad leverage since it has made it possible to gain a durable competitive edge. Due to the widespread adoption of social media, many businesses are under enormous pressure to reach out to their target market. The hub of client activity nowadays is increasingly moving online and is located inside a social media or social networking site. Although there has been debate over digital entrepreneurship and competitive advantage in both theoretical and empirical investigations, the results have been conflicting. Such researches have also tended to focus on developed economies in general. By examining the impact of digital entrepreneurship and the competitive advantage of SMEs in emerging countries from theoretical and empirical perspectives, this study bridges the geographical divide and the lack of agreement among scholars. This important connection lessens the lack of empirical evidence that supports digital entrepreneurship and the competitive advantage of SMEs.

1.2 Research Objectives

The main objective of the study is to explore the effect of digital entrepreneurship and competitive advantage of SMEs in Nigeria. Specifically, the objectives of the study are:

- i. To explore the effect of digital knowledge base and information and communication technology (ICT) market and competitive advantage of SMEs in Nigeria;
- ii. To ascertain the effect of digital business environment and competitive advantage of SMEs in Nigeria
- iii. To investigate the effect of skills and e-leadership and competitive advantage of SMEs in Nigeria
- iv. To examine the effect of entrepreneurial culture and competitive advantage of SMEs in Nigeria

2.1 Theoretical Framework

The theoretic is the Christensen theory of disruptive innovation, which describes the central role that digitalization and ICT adoption play in corporate strategy. This theory explains how business models alter within a market or collection of markets as technologically driven ideas and processes have a tendency to remodel established practices, producing difficult circumstances for those who are either reluctant or too sluggish to innovate or catch up. Businesses with innovatively consistent structures can access new markets thanks to technology within their current structures. In order to capitalize on market niches that have been overlooked by incumbent companies that are more focused on high-end trade, relatively smaller businesses with fewer resources and weaker market positions use a variety of technology concepts and resources as well as other ICT related instruments.

By offering better services and products at lower prices than the incumbents, this market segment gives "disruptive" entrepreneurs and business owners a chance to gain market share. When incumbents' preferences for mainstream utilities can finally be satisfied by these innovatively driven firms, they eventually move upmarket and eventually take up complete market shares (Christensen, Raynor, & McDonald, 2015). A significant criticism of this theory's ability to describe how digitalization affects the performance of organizations is the widespread misinterpretation of its notion and the frequent misuse of it by many people.

2.2 Digital Entrepreneurship

According to Davidson and Vaast (2010), digital entrepreneurship is the process of seeing and taking advantage of fresh business opportunities made possible by internet and new media technologies. The ability to generate financial gains through digital initiatives that are directly connected to economic activities like the development of new businesses or the marketing of innovations makes it similar to conventional entrepreneurship. According to Hair, Wetsch, Hull, Perotti, and Hung (2012), the main distinction between digital and traditional entrepreneurship is the business models and strategies used by the companies for product marketing and distribution. In the case of digital entrepreneurship, all business activities are operated digitally rather than using a traditional layout. An entrepreneurial enterprise that uses a digital platform is what is commonly referred to as digital entrepreneurship. According to Efeolu (2014), digital entrepreneurship is the process of looking for possibilities using digital media and other ICTs.

Digital technology, according to Bogachov et al. (2021), is the development and growth of digital firms that generate income from electronic communications via internet services. As a

result, it is a domain that has been in existence for a while and was inspired by the development of the internet. According to Manjon et al. (2022), the foundation of contemporary technology, innovation, and entrepreneurship in the digital age is digital entrepreneurship. The aforementioned review allows us to define digital entrepreneurship as the pursuit of business opportunities via the internet or web with the aid of digital technologies. Digital entrepreneurs are those individuals who seek to create or expand economic activity by discovering and utilizing new ICT or ICT-enabled products, processes, and corresponding markets in order to create value. The development of the constantly evolving corporate environment and economic progress depend heavily on digital entrepreneurship.

2.2.1 Dimensions of Digital Entrepreneurship

Five elements of digital entrepreneurship are identified by the European Commission (2013) in Vineela (2018). As described by (European Commission, 2013; Vineela, 2018), this study used the ICT market, digital business environment, digital skills, e-leadership, and entrepreneurial culture as proxies for digital entrepreneurship. These proxies were chosen because they are well-known and accurately reflect the goal of the study.

i. Digital Knowledge Base & ICT Market: A sort of technology called a digital knowledge base is used to store complicated unstructured and organized data or information that computer systems need. ICT is one of the technologies in charge of electronically transferring all types of business or industry-related information. The primary tool or technology employed in the process of digital entrepreneurship is ICT (Vineela, 2018).

ii. Digital Business Environment: The term digital business environment refers to a virtual setting where one or more computer systems are utilized to record or store business data and interactions between people. Digital social environments, also known as social networking sites, which contain a single central server to communicate information or data with each and every client, can be used to do this (Vineela, 2018).

iii. Digital Skills & E-Leadership: Digital talents are those personal traits that a person possesses that are related to using digital technologies. To remove disruptions in the digital business environment, attention should be paid more to the process of adopting digital technology. E-Leadership, also known as electronic leadership, is a strategy to persuade people to alter their attitudes, intentions, behavior, and performance so they may successfully accomplish their goals. E-learning can be utilized for various purposes besides digital entrepreneurship in order to draw individuals to certain sectors (Vineela, 2018).

iv. Entrepreneurial Culture: Entrepreneurial culture, according to Ireland, Hitt, and Sirmon (2003), is a sort of culture that is risk-taking, creative, and inventive. Entrepreneurial culture was defined by Brownson (2013) as consisting of entrepreneurial traits, an entrepreneurial mentality, and entrepreneurial conduct. An entrepreneurial culture is characterized as a setting where individuals are encouraged and motivated to develop the inventive thinking skills necessary to take risks. An entrepreneurial culture in business is a strategy or setting where staff members are urged to share their original ideas or goods.

2.3 Competitive Advantage

The ability to perform better than rivals in the same business or market is referred to as having a competitive edge. This skill is acquired through traits and resources. Due to current concerns about higher performance levels of organizations in today's competitive market, the study of this advantage has gained significant research interest. When a company is implementing a value-creating strategy that is not being adopted concurrently by any other player, current or potential, it is said to have a competitive edge (Clulow et al., 2003). Competitive advantage is based on the idea that there is always access to inexpensive labor and that a healthy economy does not require a lot of natural resources. The alternative idea, comparative advantage, can force nations to specialize in exporting essential items and raw materials, which, because of trade terms, can keep them in low-wage economies. In order to address this problem, competitive advantage emphasizes maximizing scale savings in products and services that command high pricing (Warf & Stutz and Warf, 2009).

2.4 Small and Medium Enterprises

SMEs are businesses that maintain revenues, assets or a number of employees to a certain threshold and are considered to be the backbone of most economies of the world. Each country has its own definition of what constitutes a small and medium-sized enterprise. Certain size criteria must be met and occasionally the industry in which the company operates in is taken into account as well. SMEs are an important segment of Nigerian economy. This is because they cut across different sectors in Nigerian economy. SMEs can exist in almost any industry, but it is more likely they reside within industries requiring fewer employees and requiring smaller upfront capital investments. Common types of SMEs include legal firms, dentist offices, restaurants, or bars and many others. To survive and succeed in a potentially austere environment, firms must effectively deploy and combine their physical, human and organizational assets. Thus, they will develop long-term competitive advantages and, in turn, achieve superior performance (Lonial and Carter, 2015). However, due to their limited resources, SMEs need to identify and exploit other means to be able to enhance their competitiveness.

2.4 Digital Entrepreneurship and Competitive Advantage of SMEs

Belitski and Liversage (2019) carry out a research on e-Leadership in SMEs Developing World using this framework and five selection criteria; we conducted 11 interviews with a sample of successful SMEs selected from a pool of 2,240 firms in the city of Johannesburg, South Africa. The study's five important conclusions, which illustrate how SMEs may establish effective e-leadership to promote commercialization and enhance business performance, were highlighted as it came to a close.

Is-haq (2019) studied on digital marketing and sales improvement in SMEs in Nigeria. The results of the analysis show that adoptions of digital marketing tools such as e-mails, search engine optimization pay per click and online advertising would significantly improve sales of SMEs. The outcome, however, implies that using several digital technologies as part of marketing strategy is necessary for SMEs to sustain increased sales in the industry.

Al-Nsour and Khliefa (2020) examined the impact of digital entrepreneurship on organizational performance in Jordanian companies working in pharmaceutical industry within the perspective of social network theory. According to the study, there is a statistically

significant association between the use of digital entrepreneurship and organizational performance in industrial enterprises that operate in Jordan's pharmaceutical industry. The outcomes also showed that acquiring financial finance and e-leadership abilities had no impact on organizational performance, whereas managing digital information and business environments had the biggest effects.

Ballı (2020) carried out research on digital entrepreneurship and digital entrepreneurship approach in Turkey. The parametric analyses reveal that the personal traits of digital entrepreneurs influence their capacity for innovation, that there is a relationship between the entrepreneurs' information technology usage and their capacity for innovation, that there is a relationship between the entrepreneurs' personal traits and their information technology usage, and that there is a relationship between the personal traits and innovation capacity.

Yousaf, Radulescu, Sinis, Serbanescu, and Păunescu, (2020) research was conducted towards sustainable digital innovation of SMEs from the developing countries in the context of the digital economy and frugal environment in Pakistan revealed that the digital orientation, IoT and digital platform are major antecedents of the sustainable digital innovation. Additionally, the findings demonstrate that both the IoT and the digital orientation-sustainable digital innovation links are mediated through digital platforms. Through cost-effective, thrifty business structures, SMEs should be able to handle these difficulties and the quick changes in technology. An essential component of sustainable digital innovation, frugal innovation enables SMEs to improve sustainable economic activity while reducing resource utilization and waste.

Mário, Luis, and Margarida (2021) investigated the impact of digital entrepreneurship on the digitization and management of SMEs in Portugal and found that this impact is beneficial, especially for those SMEs that are implementing digital entrepreneurship.

The impact of digital entrepreneurship and sustainable business models on small and medium-sized firms in Lagos State, Nigeria, is examined by Omoyele, Babarinde, Adeleke, and Aigbedion (2022). The study utilized a survey research design. A survey of 387 small- and medium-sized business managers was conducted. Regression analysis was used to study the results. In addressing the study's goals, the analysis shows that the majority of the digital entrepreneurs in Lagos State are start-up digital entrepreneurs. The empirical finding suggests that digital technologies offer distinctive combinations of elements of sustainable business models, including integrated value proposition, thorough value generation, and multidimensional value capture. According to the study's findings, there is no one-size-fits-all approach to achieving sustainability using digital technology. In this context, a thorough yet unbiased approach to integrating digital technology to increase the impact of sustainable business models is advised.

3.0 Methodology

Survey research design was applied due to its ease and the speed with which its results are made. The population of study was 27,942 SMEs from Kano and Lagos States according to PwC, 2021 report with a sample size of 394 participants was obtained using Yamane's formula (1967). Simple random sampling technique was used in selecting SMEs for easy accessibility

of information for weighing the opinion of the respondents with one state in each of the six geographical zones in the country. However, the instrument for gathering data was a well-structured questionnaire that had been reviewed by management specialists. Variables were reported to be highly significant by KMO and Bartlett's test, and principal component analysis was appropriate at 0.824, which is over the 0.70 criterion with a reliability index of 0.870. SPSS Version 23 was used to perform multiple regression analysis. Hypotheses were tested at a significance level of 0.05. Competitive advantage was the response variable, and digital knowledge base and ICT market, digital business environment, digital skills and e-leadership, and entrepreneurship culture are the explanatory variables. The model for the study is specified as follows.

$SMEs\ CPA = \beta_0 + \beta_1 DKM + \beta_2 DBE + \beta_3 DSE + \beta_4 ENC + \epsilon$. Where, *SMEs CPA* = competitive advantage, *DKM* = Digital knowledge base and ICT market, *DBE* = Digital business environment, *DSE* = Digital skills and e-leadership, *ENC* = Entrepreneurship culture, ϵ = Error term β_0 = Intercept, $\beta_1, \beta_2, \beta_3, \beta_4$ = Coefficients of the explanatory variables.

4.0 Results and Discussion

4.1 Results

Responses collected from respondents were presented in tables and data analyzed based on the responses

Table 4.1: Descriptive Statistics Analysis

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Variable	Mean	Standard Deviation
Digital knowledge base and ICT market	3.60	.688
Digital business environment	3.52	.726
Digital skills and e-leadership	3.61	.611
Entrepreneurship culture	3.53	.720
Competitive advantage	3.62	.630

Source: Authors' Computation from SPSS Output, 2022

The result in Table 4.1 shows predictors of the response and explanatory variables. The mean and standard deviation show the level of agreement of the respondents with the questions. For digital knowledge base and ICT market it has the mean and standard deviation values as (M=3.60, SD=0.688); digital business environment has mean value of 3.52 and standard deviation=0.726; digital skills and e-leadership (M=3.61, SD=0.611); entrepreneurship culture (M=3.53, SD=0.720) and competitive advantage (M=3.62, SD=0.630) indicating that SMEs in Nigeria are gaining competitive advantage.

Table 4. 2: Model Summary

R	R ²	Adjusted R ²	Standard Error of the Estimate	Durbin-Watson
.760 ^a	.578	.570	.451	1.832

a. **Predictors (Constant)**, digital knowledge base and ICT market, digital business environment, digital skills and e-leadership, entrepreneurship culture

b. **Response Variable:** competitive advantage

c. *Source: Author's Computation from SPSS Output, 2022*

The result of the model summary in Table 4.2 explains the relationship between the response variable and the explanatory variables and the goodness of the model in terms of R-value and R square. The R^2 value of 0.578 entails that 57.8% of SMEs CPA was explained by predictor variables which include digital knowledge base and ICT market, digital business environment, digital skills and e-leadership, entrepreneurship culture. The remaining 42.2% is explained by other factors not included in this study. The value of R .760 indicates that there is a strong relationship between the variables.

Table 4. 3: Analysis of Variance (ANOVA)

	Sum of Squares	Df	Mean Square	F	Sig.
Regression	48.981	5	9.796	57.287	.000 ^b
Residual	64.608	378	.171		
Total	113.589	383			

- Predictors (Constant)**, digital knowledge base and ICT market, digital business environment, digital skills and e-leadership, entrepreneurship culture
- Response Variable:** competitive advantage
- Source:** Author's Computation from SPSS Output, 2022

The result of the Analysis of Variance (ANOVA) in Table 4.3 describes the effect of the explanatory variables on the response variable since the F value was more than 5 and significance level is less than 0.05 ($F=57.287$; $Sig=0.000$).

Table 4. 4: Regression Coefficients

Unstandardized Coefficient			Standardized Coefficient		
	B	Std Error	Beta	T	Sig.
(constant)	1.246	.208		1.181	.000
Digital knowledge base and ICT market	.219	.065	.200	3.377	.001
Digital business environment	.437	.054	.458	8.159	.000
Digital skills and e-leadership	.187	.058	.392	1.489	.013
Entrepreneurship culture	.197	.063	.175	.050	.003

- Response Variable:** SMEs Competitive advantage

Source: Author's Computation from SPSS Output, 2022

The result presented in Table 4.4 shows that taking all other explanatory variables at zero, a unit change in digital knowledge base and ICT market would lead to a 21.9% increase in SMEs advantage; a unit increase digital business environment would lead to 43.7 % change SMEs advantage while a unit changes in digital skills and e-leadership affects SMEs advantage by 18.7%. Also, a unit change in entrepreneurship culture would affect SMEs advantage by 19.7 %.

4.2 Hypotheses Testing

The four study's assumptions were shown to be unfounded, indicating that the digital knowledge base and ICT market, digital business environment, digital skills and e-leadership and entrepreneurship culture all significantly and positively affect SMEs advantage in

Nigeria. Table 4.6's summary of the results for the tested hypotheses reveals that all of the variables had p-values less than 0.05.

Table 4. 6: Summary of Hypotheses Testing

Hypothesis	Result	Decision
H01: Digital knowledge base and ICT market has no significant effect on competitive advantage of SMEs in Nigeria	.001< 0.05	Rejected
H02: Digital business environment has no significant effect on competitive advantage of SMEs in Nigeria	.000< 0.05	Rejected
H03: digital skills and e-leadership as no significant effect on competitive advantage of SMEs in Nigeria	.013< 0.05	Rejected
H04: Entrepreneurial culture has no significant effect on competitive advantage of SMEs in Nigeria	.003< 0.05	Rejected

Source: *Author's Computation from SPSS Output, 2022*

4.3 Discussion of Findings

It has been discovered that the ICT market and digital knowledge base have an impact on the competitive advantage of SMEs in Nigeria. The deployment of ICTs and a digital knowledge base has improved SMEs' competitiveness in Nigeria. According to Jagongo and Kinyua (2013), who concur with this conclusion, social media tools provide better customer relationship management (CRM) and market accessibility, both of which have a substantial impact on the growth of SMEs. A study by Balli (2020) discovered that the personal traits of digital entrepreneurs influence their capacity for innovation, that there is a relationship between the entrepreneurs' levels of information technology usage and their innovation capacities, that there is a relationship between the entrepreneurs' personal traits and levels of information technology usage, and that there is also a relationship between the entrepreneurs' personal traits and capacity for innovation.

It has been proven that the Nigerian SME sector's competitive edge is influenced by the digital business environment. In agreement with this, Satalkina and Steiner (2020) came to the conclusion that digitalization of organizational management processes and its relevant ecosystem are necessary for the occurrence of innovative systems in a firm. According to Yousaf et al. (2020) conclusions that digital platform, IoT, and orientation to the digital world are key precursors to sustainable digital innovation. Additionally, the findings demonstrate that both the IoT and the digital orientation-sustainable digital innovation links are mediated through digital platforms. The commercial organizations have been pushed to think creatively and adjust their operational procedures due to the quick rate of technological change. In order to satisfy the society's growing expectations in a sustainable manner, the present decade has seen a strong need for sustainable digital innovation. According to Bouwman et al. (2018), BMI driven by social media and big data has a favorable effect on business success.

It has been found that e-leadership and digital skills have an impact on the competitive advantage of SME's in Nigeria. The results of Belitski and Liversage (2019), who discovered that effective e-leadership can promote commercialization and enhance company performance, are consistent with this. According to Afriyie, Du, and Musah (2019), transformational leadership has a moderating effect on the relationship between innovation

and marketing performance. Their findings also imply that innovation has a favorable impact on marketing performance.

Nigerian SMEs competitive advantage is impacted by entrepreneurial culture. According to Kabuoh, Ogbuanu, Chieze, and Adeoye's (2017) research, there is a strong correlation between entrepreneurial culture and the success of SMEs in Lagos State. In order to improve performance and sustain national economic development and reduce African dependency, SMEs must adopt an entrepreneurial culture and innovative ideas. Asikhia, Makinde, Akinlabi, and Ukenna's (2019) assertion that entrepreneurial culture had a favorable impact on the sales growth and profitability of particular SMEs in the agriculture sector in Oyo State, Nigeria, provide more support for this.

5.1 Conclusion and Recommendations

According to this study, digital entrepreneurship has a favorable and considerable impact on SMEs' total competitive advantage. This study also demonstrates the considerable impact of digital entrepreneurship characteristics on the competitive advantage of SMEs in Nigeria, including the digital knowledge base and ICT market, digital business environment, digital skills and e-leadership, and entrepreneurial culture. The study also discovered that, among the aspects of digital entrepreneurship examined, the digital knowledge base and ICT market are the best predictors of competitive advantage for SMEs. According to the study's findings, SMEs must now demonstrate digital entrepreneurship and create a positive corporate culture in order to thrive, outperform their rivals, and obtain a competitive advantage. Alternately, digital entrepreneurship efforts within already-established corporate organizations are a source of vitality and a source of competitive advantage, which can result in greater business performance. Therefore, this study draws the conclusion that digital entrepreneurship affects SMEs' ability to compete in Nigeria.

5.2 Recommendations

In light of the findings, it is advised that SMEs in Nigeria should integrate the ICT market and digital knowledge base in order to surpass their competitors.

Nigerian SMEs should adopt a digital business environment to give themselves a competitive edge over rivals.

Since effective e-leadership can promote commercialization and improve SMEs performance, SMEs in Nigeria should embrace digital skills and e-leadership in order to improve and gain superior performance.

To improve superior performance and maintain a competitive edge in their industry, SMEs in Nigeria should adopt an entrepreneurial culture and inventive ideas.

6.0 Practical Implications of Findings

By incorporating earlier research on digital entrepreneurship, including the conceptualization, antecedents, and outcomes, this study adds to the body of knowledge about the subject. In addition, it offers directions for future research and identifies knowledge gaps in the existing literature. Since business owners and entrepreneurs are expected to assess and investigate business opportunities in search of their career path by establishing self-competencies, the study's conclusions are crucial for practical reasons.

This study adds to the growing body of knowledge on the relationship between digital entrepreneurship and SMEs' competitive advantage. The insights are intended to help practitioners, policymakers, and other stakeholders better appreciate the need to support digital entrepreneurship and build the infrastructures required for these features to present themselves across the range of digital entrepreneurship. The results have pushed business owners and entrepreneurs to develop strategies and push digital entrepreneurship in their SMEs for long-term advantage.

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