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## Article

# Digitization of small and medium-size restaurant enterprises: the mediating role of owner/manager IT skill and moderating influence of COVID-19

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# Digitization of small and medium-size restaurant enterprises: the mediating role of owner/manager IT skill and moderating influence of COVID-19

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## ABSTRACT

**Purpose:** The purpose of this study is to empirically examine the moderating effect of the COVID-19 pandemic on SME digitization in the restaurant sub-sector of the hospitality industry. The study further seeks to examine the mediating role of owner/managers' skills and attitudes on the digitization efforts of SMEs.

**Design/methodology/approach:** Data from 397 owners and nonowner executives of 261 restaurant SMEs were analyzed using Partial Least Square Structural Equation Modelling (PLS-SEM).

**Findings:** The findings show that the COVID-19 pandemic is a significant moderating factor that could positively influence SMEs in the restaurant sector to digitize their operations. The study found no direct relationship between digital strategy, competitive pressure, and SME digitization. However, the study's findings show that owner/managers' skills and attitude are a significant positive mediator for SME digitization.

**Research limitations/implications:** The study is limited to one sector in the hospitality industry. Additional studies are required to analyze multi-source data from other SMEs to deepen our understanding of the influence of the COVID-19 pandemic on SME digitization. Other moderating and mediating variables could also be examined.

**Practical implications:** The significant moderating influence of COVID-19 implies that restaurant SMEs could take advantage of the pandemic and move from the marketplace to market space by digitizing their operations. To achieve this, they need to invest in owner/managers' digital skills.

**Originality/value:** To the best of the authors' knowledge, the study is among the first to empirically examine the moderating influence of the COVID-19 pandemic on SME digitization from an emerging market context.

## ARTICLE HISTORY

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## Introduction

One major crisis that has affected human life, businesses, and economies globally in recent times is the COVID-19 pandemic. The stringent measures taken by governments worldwide to reduce the spread and impact of the pandemic have resulted in some, if not most, businesses closing down, losing revenue and valuable employees (Coffie et al., 2024). Although the pandemic has affected almost every business sector, the hospitality industry, including the restaurant sub-sector, was one of the most affected sectors, largely due to the restrictions on human movement (Dube et al., 2020; Song et al., 2021). According to the Restaurant Business Magazine (2022), the sector, for instance, lost over 6 million jobs, wiping out three decades worth of employees and \$120 billion in revenue and most of its valuable employees due to the pandemic. The effect of the pandemic on restaurant businesses in developing economies has even been more devastating given the fact that most of these businesses are small in nature and mostly

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operate in open settings (physical structures) with little attention to the internet, software, or online settings (Okereke et al., 2021; Shafiee et al., 2016; Yang et al., 2020). The work of Papadopoulos et al. (2020), for instance, shows that though the pandemic has had a negative impact on businesses, those who integrate digital solutions into their business operations were less affected by the pandemic. The findings of Lakshmi and Shareena (2020), in particular, show that restaurants in developed economies were less affected by the lockdown since most aspects of their operations, such as supply chains, were digitalized and supported by online ordering systems. The findings of Shafiee et al. (2016) also point to the fact businesses in the tourism sector that embrace ICT are more able to create sustainable tourism products with a positive effect on tourist loyalty and revisit intention. Thus, a key lesson taught by the pandemic is that digitalization and adoption of information technology tools is the way forward as it has a significant positive effect on business survival and performance. The question, however, is, have small businesses, particularly small businesses in the restaurant sector in less developed economies, learned this lesson? Has the pandemic influenced their preparedness, willingness, or appetite to adopt and digitize their operations?

Although past studies have examined the impact of COVID-19 on business performance (Bai et al., 2021; Dankwah et al., 2023; Eyvazpour et al., 2020; Ocloo et al., 2023; Zeqiri et al., 2021; Zhu & Zhang, 2021), little attention has been given to empirically examining the interactive role the pandemic might have played in influencing businesses to adopt digital tools for their operations. Examining the interactive role of the pandemic or how the pandemic has influenced the intention of small businesses to adopt digital tools is important as findings of past studies have primarily shown inconsistent relationship between the antecedents of digitization and SME digitization (Dube et al., 2020; Song et al., 2021), confirming the reluctance of these businesses to adopt digital tools for their business operations (Dube et al., 2020; Okereke et al., 2021; Shafiee et al., 2016; Yang et al., 2020). The OCED report on digital technology adoption among businesses, for instance, confirms the low adoption of digital technologies among SMEs, particularly in less developed countries, as their report indicates that the adoption rate among SMEs in less developed economies remains below 28%. Knowing whether the pandemic has propelled owners/managers of small businesses to adopt digital tools for their business operation is equally necessary as it will help policymakers design effective interventions and communications to stimulate the digitization efforts of these businesses. For instance, knowing whether the pandemic has increased the willingness of owners of these businesses, who are mostly reluctant to digitization, can inform policy to introduce innovative strategies or ideas to speed up the digitization drive of these businesses, thereby speeding or helping governments to achieve their own digitalization agenda of the economy and reduce the informal nature of most economies in less developed countries. The study sought to empirically examine the interactive influence of the pandemic on the antecedents of the SME-digitisation nexus with a primary focus on small restaurant businesses, given their unique nature and the gravity of the pandemic's impact on this sector, as stated earlier.

The study further examined owner/manager IT skills as a mediator in the relationships between the antecedents of SME digitization and the actual digitization of SMEs. Studies examining the antecedents of SME digitization have largely focused on competitive pressure, organizational culture, digital strategy, and employees' IT skills (Kohnke, 2017; Saniuk et al., 2023) with little attention to the owner/manager's IT skills (Isensee et al., 2020). Though these studies provide important insights, their results are mixed and inconsistent. For instance, while the findings of Rachinger et al. (2018) and Saniuk et al. (2023) show a positive and significant relationship between employees' IT skills and SMEs' digitization, the findings of Eller et al. (2020) show an insignificant relationship. Similarly, while Louw and Nieuwenhuizen (2020) finding shows digital strategy as an important variable for SMEs' digitization, the findings of Becker and Schmid (2020) show otherwise. The mixed findings could be attributable to an important missing link—the IT skill/inclination of the owner/manager. As noted by Laudon and Laudon (2017), instead of taking an active role in how IT shapes their organizations, most business owners/managers ignore it, claiming not to understand IT and tolerate failure in that regard. Such businesses pay a hefty price for poor performance. The intellectual capabilities of managers in terms of IT are key to the digitization drive of SMEs and their competitiveness (Anlesinya et al., 2014; Bukari, 2016; Kawiana et al., 2021; Shafiee, 2022). Companies can spend resources to



acquire digital resources, but if the owner/managers do not have the requisite skills and positive attitude for digitization, these resources are likely to become a white elephant. We thus contend that given the importance of owner/manager IT skills in the success or failure of digitization efforts or strategies, it will play a very significant role as a mediator between the various antecedents of digitization and SME digitization.

## Literature review

### *Impact of COVID-19 on SMEs in the restaurant sub-sector of the hospitality industry*

The restaurant and hospitality industries are important socio-economic sectors that significantly contribute to the world economy (Dube et al., 2020; Lakshmi & Shareena, 2020; Yang et al., 2020). The restaurant sector, in particular, is one of the most important global sources of jobs and revenue. However, crises that damage infrastructure and disrupt human movement, such as COVID-19, constitute a significant threat to the sector, which usually results in a consequential loss of revenue (Dube et al., 2020; Lakshmi & Shareena, 2020). The COVID-19 crisis has resulted in a significant drop in sales and revenue for most businesses worldwide. However, the restaurant sector has been hit the hardest (Dube et al., 2020). In this study, we seek to decipher the role of natural disasters, such as the COVID-19 pandemic as a propellant of SME digitization. This is particularly true for SMEs in the restaurant sector, which predominantly suffer from disasters resulting in human movement restrictions.

The COVID-19 pandemic has prompted governments worldwide to enact policies and prohibitions to stem the spread of the pandemic. Lockdowns of nations, social distancing, wearing masks, closing physical business activities, and reducing working hours were all enforced (Gavrila & de Lucas Ancillo, 2021; Yang et al., 2020). Businesses have been hampered by such limitations to the point that their long-term viability is in doubt (Dube et al., 2020; Yang et al., 2020). According to a critical review of the incidents, the impact of the regulations seems to be more severe on SMEs, particularly those operating restaurants in emerging markets (Kimuli et al., 2021). This is due to a lack of resources and little attention to digital technologies. As a result, the operations of these businesses have shrunk dramatically, resulting in job cuts and branch closures.

Although the impact of the pandemic on the restaurant sector is very grievous, the study by Kimuli et al. (2021) shows that restaurants operating open-table platforms were most negatively affected by the COVID-19 pandemic. This is because the measures, such as lockdowns and social distancing instituted to halt the spread of the pandemic have resulted in a total disappearance of sit-in guests, resulting in a significant reduction in sales, revenue, and the closure of branches (Kimuli et al., 2021; Lakshmi & Shareena, 2020). The majority of these restaurants which practices open-table platforms are found in most developing where online purchase and delivery system are less practised. Without a doubt, the COVID-19 pandemic has changed our usual way of life the way we know it, with most scholars describing it as the new normal (Zhu & Zhang, 2021). For example, most businesses now meet virtually and work from home. In other words, the status quo is gradually changing due to the disruptions caused by the COVID-19 pandemic. The effects of the pandemic have created both challenges and opportunities for businesses (Gavrila & de Lucas Ancillo, 2021). While most studies have examined the negative impact of the pandemic on businesses in the restaurant sector (e.g. Dube et al., 2020; Yang et al., 2020), limited attention is given to the positive lessons for businesses, particularly SMEs, in emerging markets going forward. Based on this premise, the current study proposes to examine the role of the pandemic as a moderating variable for SMEs' adoption of digital technologies. Thus, this study suggests that SMEs' adoption of digital technologies can be a catalyst for their growth during and after the pandemic.

The contributions of small and medium-sized enterprises (SMEs) to economic development, particularly in emerging economies of Sub-Saharan Africa, cannot be overemphasized (Kassean et al., 2015). Some scholars describe the SME industry as the engine of growth, while others describe it as the lubricant that keeps the engine running smoothly (Afonso Alves et al., 2021; Ahmad et al., 2020; Pulka et al., 2021). Furthermore, according to Umadia and Kasztelnik (2020), SMEs account for the largest share of the private sector globally. In Sub-Saharan Africa, SMEs account for almost 90% (World Bank, 2020) of businesses, contribute about 60% to GDP, and employ over 70% of the employable population (Abisuga-Oyekunle et al., 2020; Farhikhteh et al., 2020). The tourism industry, for instance, is one of the



leading industries in B2C commerce as it has consistently increased the sales and purchase of its products online (Shafiee et al., 2018; Shafiee & Najafabadi, 2016).

### ***Digitization of SMEs***

Digitization is defined as technological devices and internet-based systems for business operations (Nguyen et al., 2015). These devices and systems include computers, tablets, mobile phones, social media platforms, websites, digital banking, and transport (Eller et al., 2020; Nguyen et al., 2015). These technologies allow SMEs to access markets, advertise their businesses, and reach out to customers locally and internationally during and after the COVID-19 pandemic. Khayer et al. (2021) suggest that digital technology can be a crucial resource for firms to engage with their customers and stakeholders for business operations effectively.

Garzoni et al. (2020) categorized digital technologies into digital objects, platforms, and infrastructure. The digital objects are programs and media content that provide defined value to the customers. The platforms include a set of services that host additional offerings, such as Google's Android, that enable smartphones to operate successfully (Garzoni et al., 2020). Digital infrastructure, on the other hand, represents the tools and systems used by businesses to communicate and network with different stakeholders to support business operations (Das et al., 2020; Lorenz et al., 2020). Based on these descriptions, Bin et al. (2021) define digital technologies as electronic instruments, programs, resources, and devices used to store and process data to achieve business goals and objectives. We, thus, define the digitization of SMEs as small businesses taking advantage of electronic devices and instruments to conduct business operations over the Internet. Using digital technologies for business operations promotes communication, content management, networking, customer satisfaction, and retention (Alraja et al., 2021; Khayer et al., 2021).

### ***Antecedents of SME digitization***

#### ***Digital strategy***

The digitalization strategy is a well-designed plan firms seek to follow to transform their business processes digitally (Nguyen et al., 2015; Proksch et al., 2021). Thus, a digital strategy entails developing goods and services with digital technologies from a corporate standpoint. Research has shown that having a clear and coherent digital strategy is a prerequisite for digitally transforming business operations and organizational structure (Bukari et al., 2019; Eller et al., 2020; Garzoni et al., 2020). Thus, digitization is not an event but a clear strategy beyond identifying digital resources in functional areas. Digital technology adoption pervades the entire enterprise, transcends conventional company boundaries, and necessitates a plan to manage the transition to achieve the specified objective (Alraja et al., 2021; Becker & Schmid, 2020; Khayer et al., 2021). Though digital strategy is important to digitization, studies examining its impact have mixed findings. For instance, the findings of Canhoto et al. (2021), Kamm et al. (2021), and Louw and Nieuwenhuizen (2020) show a positive connection between digital strategizing and the successful implementation of digital objectives.

On the contrary, the works of Becker and Schmid (2020) and Proksch et al. (2021) show that although having a clear and coherent digital strategy generates enthusiasm and positive values among owner/managers, which is necessary for achieving successful implementation of digitization of processes majority of SME owners/managers are reluctant to develop one. This shows that the absence of a clear digital strategy will lead to a waste of resources. Based on this, we hypothesized as follows:

Hypothesis 1: Digital strategy has a positive and significant impact on restaurant SMEs' digitization.

#### ***Organisational culture and digitization***

Organizational culture is an organization's shared values, ideals, principles, assumptions, opinions, aspirations, attitudes, and norms (Isensee et al., 2020). It has been proposed that a change-friendly culture is more creative than one that is averse to change (Blengini, 2020; Isensee et al., 2020; Kawiana et al., 2021). As a result, in a flexible culture, adopting digital technologies is much more likely to occur and



be successful. In small businesses, the owner, typically the manager, makes the most crucial decisions based on prior experience, judgment, and communication abilities. Past studies have shown that the owner/manager's attitude, disposition, and beliefs significantly impact the organizational culture in small businesses (Alraja et al., 2021; Isensee et al., 2020; Kawiana et al., 2021; Proksch et al., 2021).

For several SMEs, whether or not to exploit a new technology is determined by how well the owner-manager is aware of market trends, captures consumer needs, and interprets and responds to signals from technical and environmental contexts (Ocloo et al., 2023; Kawiana et al., 2021). For instance, the work of Isensee et al. (2020) shows that the knowledge, interest, and IT inclination of managers are the most significant drivers of digitization among service-oriented SMEs. As noted by Anning-Dorson and Nyamekye (2020), a flexible organizational culture that is adaptive to change and creates room for creativity and continuous learning is a prerequisite for SMEs' successful adoption and implementation of digital tools. The study, therefore, hypothesized as follows:

Hypothesis 2: Organisational culture has a positive influence on digitization of SMEs in the restaurant sector

### ***Competitive pressure***

In a competitive environment, the ability to continually scan the environment, innovate, and adapt to current trends in an industry is key to survival and success (Anning-Dorson & Nyamekye, 2020). The macro environment's influence should not be overlooked. SMEs are mostly under pressure from the environment to implement technical tools for their business processes. SMEs may also be pressured to adapt technology due to demand from core consumers, rivals, government legislation, industry requirements, or suppliers (Bukari, 2016; Nguyen et al., 2015; Saleh & Manjunath, 2020; Tarute et al., 2018). For instance, the work of Raghavan et al. (2018) shows that most businesses in India were compelled to adopt mobile transactions as a result of the government's denomination of certain currencies.

Raghavan et al. (2018) identified three types of pressures: coercive, normative, and mimetic, which could influence SMEs to adopt technological tools for business operations. In unpredictable conditions, mimetic pressure may be linked to rivals. To survive and preserve a competitive edge, businesses may react to the behaviours of competitors. Mimetic forces allow an organization's systems and behavior to shift with time as they adapt to the structures and actions of other organizations in the same industry (AlGhamdi et al., 2013; Bollweg et al., 2020; Saleh & Manjunath, 2020). Competitive pressure is a major indicator of E-Business adoption activities and technologies (AlGhamdi et al., 2013; Skafi et al., 2020). Coercive pressure stems from those the firm is dependent on (Raghavan et al., 2018). These include governmental and regulatory bodies, customers, suppliers, and other key stakeholders. Normative pressure comes from the need to keep up with industry norms. The need to keep up with other companies that use digital methods and remain relevant in an industry can push a company to embrace the digitization of its operations. For this study, we adopt the mimetic and normative definitions of competitive pressure. We, therefore, hypothesized as follows:

Hypothesis 3: Competitive pressure has a significant influence SMEs adoption of technological tools for their business operations.

### ***The mediating role of owner/managers' skill and attitude***

From a broader organizational perspective, the skill, knowledge, commitment, and attitude of owners/managers towards using digital technologies will play a significant role in the digitization efforts of SMEs. Creating teams with the right blend of skills is required for a successful digital project (Beliaeva et al., 2019; Eller et al., 2020; Louw & Nieuwenhuizen, 2020). As noted by scholars (e.g. Bukari et al., 2020; Nguyen et al., 2015; Shafiee et al., 2023), organizational factors, such as human capital, the ability of teams to adapt to change, owner/managers' attitude towards digitization, and their skills in generating new knowledge are essential variables for SMEs' successful implementation of digital objectives. In other words, the skills and attitude of owners/managers towards digital tools are necessary for SMEs to take full advantage of digital technologies for their operations. Because successful digitization necessitates competent and committed workers, SMEs' digitization efforts must focus on producing trained personnel.



The findings of Shafiee (2021) for instance have shown that knowledge, such as IT knowledge of the workers including the managers of an organisation a key tool to creating and maintaining competitive advantage in today's highly competitive business environment. Therefore, forming teams with the necessary digital skills is critical to SMEs' digitization efforts. For instance, the work of Hamburg (2021) identifies the promotion of continuous learning and skills development as critical components in developing digital capabilities.

Technological progress can only be fully realized if the necessary skills are developed, creativity is enhanced, and organizational culture and structures are developed (Beliaeva et al., 2019; Eller et al., 2020; Hubschmid-Vierheilig et al., 2019). SMEs need a combination of hard and soft skills, such as the ability to use technology and analyze large amounts of data and the ability to solve poorly structured problems, embrace change, generate ideas, and recognize opportunities. Past studies have shown that owner/managers' attitudes and skills are crucial to transforming a company's digitization effort. We thereby hypothesized that:

Hypothesis 4: Owner/managers' IT skills or attitude towards digitization mediates the relationship between digital strategy and SMEs' digitization

Hypothesis 5: Owner/managers' IT skills or attitude towards digitization mediates the relationship between organisational culture and SME-digitization.

Hypothesis 6: Owner/managers' IT skills or attitude towards digitization mediates the relationship between competitive pressure and SMEs' digitization effort.

### ***The moderating effect of COVID-19 pandemic on SMEs digitization***

Research has shown that adopting digital technologies for business operations has a significant positive influence on business performance (Canhoto et al., 2021; Eller et al., 2020; Papadopoulos et al., 2020; Pulka et al., 2021). The findings of Eller et al. (2020), for instance, indicate that usage of digital technologies is associated with improved business competitiveness, productivity, profitability, and overall performance (Canhoto et al., 2021; Eller et al., 2020; Papadopoulos et al., 2020; Pulka et al., 2021). Using digital technologies will also enable businesses and customers to interact (Yeboah-Boateng & Essandoh, 2014). Johnson and Bharadwaj (2005) posit that businesses that employ these technologies are more likely to obtain significant customer complaints, user experience, and client requirements. This suggests that digital technologies will likely enable entrepreneurs to offer superior services, given that customer complaints can be noted in real-time.

Despite the importance of digitization to business performance, past studies examining the relationship between the antecedents of digitization and SMEs' adoption of digital tools for their business operations show mixed and inconsistent results, with the majority of studies indicating an insignificant relationship between the antecedents and adoption of digital tools by SMEs (Becker & Schmid, 2020; Eller et al., 2020; Proksch et al., 2021; Wong et al., 2020). For instance, while the findings of Eller et al. (2020) and Garzoni et al. (2020) show digital strategy as the key predictor of SMEs' adoption of digital technologies for their business operations, the findings of Becker and Schmid (2020) and Proksch et al. (2021) shows an insignificant association between digital strategy and competitive pressure and intention to adopt or digitize business operations by SMEs. Similarly, the findings of Anlesinya et al. (2014), Maduku et al. (2016), Ocloo et al. (2018), and Wong et al. (2020) also found a positive and significant association between competitive pressure from competitors who are adopting similar technologies and the intention of SMEs in the financial sector to adopt digital technologies. Their findings suggest that the higher competitors in an industry adopt digital technologies, the higher the intention and possibility of businesses in that industry to adopt digital technologies for their operations. However, they found no significant relationship between organizational culture and SMEs' adoption of digital technologies.

The mixed and insignificant results suggest a need to examine factors that could strengthen the association between the antecedents and the intention of managers/owners of SMEs to adopt digital technologies. As indicated earlier, given the devastating impact of COVID-19 on businesses, particularly those who paid little attention to technology, as well as the lesson that businesses that hinged their operations on technology are more likely to overcome challenges that restrict the movement of people, we are of the



view that the impact of the pandemic will have a significant interactive influence on the relationships between the antecedents and adoption of digital technologies by SMEs, particularly those in the restaurant sector. In other words, the disruptions presented by the COVID-19 pandemic could be a significant propelling factor for SMEs in the restaurant sector to adopt digital technologies for their business operations.

Based on the above discussions, the following hypotheses are formulated.

Hypothesis 7: The COVID-19 pandemic will be a positive significant moderating factor between digital strategy and SME-digitization such that SMEs in the restaurant sector will be more willing to plan to digitise their operations.

Hypothesis 8: The COVID-19 pandemic will positively and significantly moderate the relationship between organisational culture and SME digitization such that SMEs will be more willing to put measures in place to embrace digitization.

Hypothesis 9: The relationship between competitive pressure and SMEs digitization will be moderated by the COVID-19 pandemic (i.e. more SMEs in the restaurant sector will take digitization of their operations more seriously when other companies are doing so).

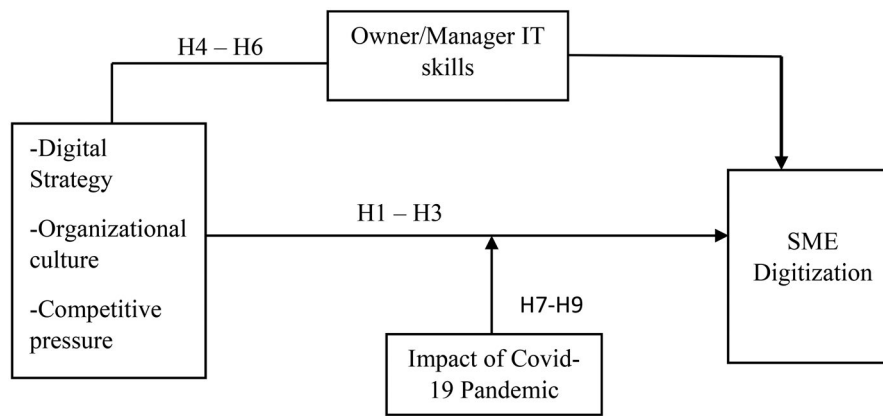
### *Theoretical perspective*

The current study was conducted from the lens of the resource-based view theory (RBV). The RBV posits that businesses gain a competitive advantage by combining valuable, rare, inimitable, and non-substitutable resources and abilities (Barney, 1991; Corte et al., 2017; Dethine et al., 2020). In a simplified manner, the RBV posits that (a) firms possess heterogeneous resources, (b) the resources can be used to conceive, choose, and implement firm strategies, (c) these strategies are likely to be different, if not similar, but not identical (d) these strategies contribute to and account for differences in firm performance (e) firm performance is predicated on firm resources (f) those resources of the firm that are valuable, rare, hard to imitate, durable, and appropriable, can create a sustained competitive advantage (g) and that firms with competitive advantages can enjoy myriad benefits (Barney, 1991; Barney & Wright, 2011; Corte et al., 2017). The resources of the firm could be internal or external to the firm. The company owns and manages internal resources, such as human, financial, physical, and technological tools. In contrast, the firm has some level of influence over external resources or assets, such as customers, competitors, and suppliers (Corte et al., 2017). This provides an opportunity for the firm to leverage these resources to their advantage and achieve their business goals.

‘Considering the information presented earlier’, when SMEs in Ghana’s restaurant sector digitize their operations, it is more likely to become a valuable internal resource that is unusual, difficult to duplicate, and capable of giving long-term competitive advantage. The current study was conducted from the lens of the resource-based view theory (RBV). The RBV posits that businesses gain a competitive advantage by combining valuable, rare, inimitable, and non-substitutable resources and abilities (Barney, 1991; Corte et al., 2017; Dethine et al., 2020). In a simplified manner, the RBV posits that (a) firms possess heterogeneous resources, (b) the resources can be used to conceive, choose, and implement firm strategies, (c) these strategies are likely to be different, if not similar, but not identical (d) these strategies contribute to and account for differences in firm performance (e) firm performance is predicated on firm resources (f) those resources of the firm that are valuable, rare, hard to imitate, durable, and appropriable, can create a sustained competitive advantage (g) and that firms with competitive advantages can enjoy myriad benefits (Barney, 1991; Barney & Wright, 2011; Corte et al., 2017). The resources of the firm could be internal or external to the firm. The company owns and manages internal resources, such as human, financial, physical, and technological tools. On the other hand, external resources assert the firm may control to a certain degree but not necessarily owned by the firm, such as customers, competitors, and suppliers (Anlesinya et al., 2018; Corte et al., 2017).

Based on these discussions, we conclude that when SMEs in Ghana’s restaurant sector digitize their operations, it is more likely to become a valuable internal resource that is unusual, difficult to duplicate, and capable of giving long-term competitive advantage (Figure 1).





**Figure 1.** Conceptual framework.

## Methodology

The study is a quantitative cross-sectional study that looked at the role of COVID-19 as a moderator and the mediating role of owner/managers' IT skills and attitudes in the digitization efforts of SMEs in the restaurant sector. Primary data were collected from owners/managers/supervisors of small and medium size restaurants operating in Ghana. The data were collected using structured questionnaires. For a valid and reliable sample frame, the National Hospitality Association of Ghana (NHAG) was contacted for the list of restaurants operating in Ghana. A list containing a total number of 5025 restaurants was obtained from the association. Since the majority of restaurants registered with NHAG are located in Accra and Tema, the dataset for this study only includes restaurants from these cities.

All the measurement items were adapted from existing literature (i.e. modified to suit the current purpose and context). Digital strategy and competitive pressure were each measured with six items. Organizational culture and owner/managers' skills and attitudes were also measured with eight items each. The impact of COVID-19 was measured with seven items, and SME-digitization was measured with six items. The items were measured on a Five-Point-Likert scale (1 = strongly disagree, 5 = strongly agree). The items were given to some PhD students and lecturers in the Marketing department to check for the correctness of the wording. The measurement items were pretested using 20 restaurants (5 from each selected location) to ensure that the respondents understood the items. After the pre-test, eight items were reworded for clarity.

According to Bartlett et al. (2001), a designated sample size is the desired sample size which is usually derived after calculating for sample while the actual sample size is the exact number of respondents who participated in the survey whose responses are used for data analysis. Following Glenn's (1992) sample size determination table, a designated sample size of 370 was estimated based on a 95% confidence level and 5% precision level. A systematic sampling technique was used in selecting the respondents for the study. With the help of Google Maps, the physical locations of 194 of the restaurants were located. Telephone calls were made to 114 of the restaurants for directions to their locations since it was difficult to locate them using Google Maps. Fifty-three (53) of the restaurants had ceased operations as at the time of our visit. Nine (9) of the restaurants could not be located. In each restaurant, the purpose of the survey was thoroughly explained to the managers/owners with assurance of their anonymity before asking them to participate in the survey. Despite the thorough explanation and assurance of anonymity, 96 of the managers/owners declined participation in the survey. Thus, after the 12-week period of data collection, a total of 212 responses representing a response rate of 68.8% were received. The demographic profile of the respondents are displayed in Table 1.

The data was analyzed using Partial Least Square Structural Equation Modelling (PLS-SEM). The analysis followed the two-step approach for SEM-based procedures for data analysis (Anderson & Gerbing, 1988). The first step is to evaluate the constructs for reliability and validity (measurement model), followed by a test of the hypothesized paths (structural model). To minimize the risk of response bias that



**Table 1.** Demographic profile.

Description	Frequency	%
Gender		
Female	129	61
Male	83	39
Age		
18–24	61	29
25–34	96	45
35–44	29	14
45–54	17	8
55 and above	9	4
Education level		
Bachelor's or less	135	64
Master's	72	34
PhD	5	2
Experience		
<5 years	68	32
5–10	98	46
11–20	27	13
>20 years	19	9

may arise from response tendencies or acquiescence bias (the inclination to agree or disagree with statements regardless of their actual content), some of the measurement items were formulated negatively. This approach aimed to ensure more accurate and valid responses from the participants. However, during data entry, reverse coding was done for items that were worded negatively (e.g., ICO1, ICO2, ICO3, ICO4, CP2) (Table 2).

## Results

### *Test for measurement model*

The average variance extract (AVE), Cronbach Alpha ( $\alpha$ ), Composite Reliability (CR), and factor loadings of the items were used to assess the measurement model's reliability and validity (Sarstedt et al., 2017). Five items (ESA3, ESA4, ESA5, DIG3, DIG6) that had their factor loadings below the recommended threshold of 0.6 were deleted (Hair et al., 2017; Sarstedt et al., 2020). According to scholars (e.g. Sarstedt et al., 2017), the minimum recommended value for both Cronbach Alpha ( $\alpha$ ) and Composite Reliability (CR) is 0.7 and an AVE value of not <0.5. In other words, a measurement model must attain these requirements to achieve reliability and validity. As displayed in Table 2 and Figure 2, the PLS-SEM Algorithm results show that the Cronbach Alpha ( $\alpha$ ), Composite Reliability (CR), and factor loadings of the measurement items are above the recommended thresholds, demonstrating high validity and reliability of the constructs.

The procedure proposed by Fornell and Larcker (1981) was followed to determine the measurement items' discriminant validity. As shown in Table 3, the square roots of the AVEs are greater than the correlation coefficients of the constructs, suggesting that discriminant validity was achieved. Additionally, the HTMT ratio of correlation, a comparatively stricter and more reliable criterion, was also used to assess the discriminant validity of the constructs. According to scholars (e.g. Ahmad et al., 2020), the correlation values of the latent variables should not exceed 0.90 as a threshold. Table 4 shows that the greatest correlation value among latent variables was 0.893, which is below the threshold value, indicating that the measurement model has fulfilled discriminant validity.

In conclusion, the constructs are unidimensional, with high reliability, convergent validity, and discriminant validity, thereby allowing the structural model to be assessed.

The explanatory power ( $R^2$ ) of the model is also displayed in Figure 2. Though there is a globally accepted rule of thumb, Hair et al. (2017) posit that  $R^2$  values of 0.25, 0.50, and 0.75 could be described as weak, moderate, and substantial, respectively. As displayed in Figure 2, the results show that the independent variables (DS, OC, CP, and ICO) and the mediating variable (ESA) explained 79.4% of SMEs' digitization in the restaurant industry. Likewise, 73.3% of owner/managers' skills and attitudes towards digitization efforts of SMEs are explained by the independent variables.



**Table 2.** Reliability and validity of the measurement model.

Construct	Source of item	Code	Item	Loading	Alpha ( $\alpha$ )	CR	AVE
Digital strategy	Alraja et al., 2021; Becker & Schmid, 2020	DS1	We have developed a plan for digitizing our businesses processes	0.901	0.951	0.962	0.867
		DS2	Everybody in our organization is aware of the plan for digitization	0.908			
		DS3	I think having a strategic plan for digitization is important	0.918			
		DS4	A strategic plan will help us to be proactive rather than reactive	0.918			
		DS5	Having a clear and coherent strategy will increase our interest in the digitization effort	0.886			
		DS6	A clear strategy for digitization will enhance our effort to transform our business online	0.847			
Organisational culture	Bollweg et al., 2020; Isensee et al., 2020	OC1	Management is committed to the use of IT for our business operations	0.949	0.975	0.979	0.852
		OC2	I think there is enough flexibility in the company to allow the adoption of the IT process	0.950			
		OC3	The owner of the restaurant is knowledgeable about IT and interested in the use of digital technologies for the business	0.948			
		OC4	Management and owner are aware of the technological trends in the business environment	0.947			
		OC5	Owner/managers are allowed to explore to learn for themselves	0.905			
		OC6	Most of the decisions concerning digitization are made by the owner of the restaurant.	0.862			
		OC7	There is teamwork in the organization to allow knowledge sharing on IT adoption	0.919			
		OC8	The beliefs, values, and attitude of the owner regarding digitization will encourage the adoption of the IT process in the company	0.900			
Competitive pressure	Raghavan et al., 2018	CP1	We need adopt IT in our operations because our main competitors are adopting it for their business operations	0.910	0.969	0.975	0.867
		CP2	We can lose our customers to our rivals if we fail to use technological tools for our operations	0.941			
		CP3	We have to digitize our operations since most customers now use online services	0.938			
		CP4	I think we will be under pressure to use IT if every restaurant is adopting it.	0.935			
		CP5	The government's plan to digitize the economy can force us to go digital	0.927			
		CP6	Using digital technologies will keep us relevant and help create a positive image for us	0.935			
Owner/manager IT skill and attitude	Beliaeva et al., 2019; Eller et al., 2020	ESA1	The skills of manager in IT is very important for the digitization of the company	0.896	0.947	0.959	0.825
		ESA2	Training in IT is important to achieving our digitization effort	0.886			
		ESA6	The commitment of owner/manager towards digitization effort is very key for the successful implementation of digitization plans	0.921			
		ESA7	A positive attitude of manager towards digitization is key to achieving digitization efforts	0.921			
		ESA8	I am willing to acquire necessary skills that will help my company achieve its digitization efforts	0.916			
Impact of COVID-19	Mkhonza & Sifolo, 2021	ICO1	The outbreak of the COVID-19 pandemic negatively affected our business	0.937	0.978	0.982	0.884
		ICO2	We lost customers and revenue as a result of the containment measures	0.949			
		ICO3	Using digital technologies will help reduce the impact of natural disasters, such as COVID-19 on our business	0.951			
		ICO4	Our working capital has reduced due to impact of the pandemic	0.943			
		ICO5	Using technological tools, such as websites and media platforms will help us keep in touch with our customers always	0.934			
		ICO6	As a result of the pandemic, we have started online services for our customers	0.945			
		ICO7	I think the provision of online and delivery services is the way forward for the restaurant sector	0.922			

(Continued)



Table 2. Continued.

Construct	Source of item	Code	Item	Loading	Alpha ( $\alpha$ )	CR	AVE
SME digitization	Whitelaw et al., 2020	DIG1	We have acquired the necessary platforms needed for the digitization of our operations	0.952	0.940	0.957	0.848
		DIG2	We have started and are on course with the digitization of our business operations	0.939			
		DIG4	In the next three years, we have plans to digitize our business operations	0.855			
		DIG5	We have plans to digitize our operations in the next five years fully	0.934			

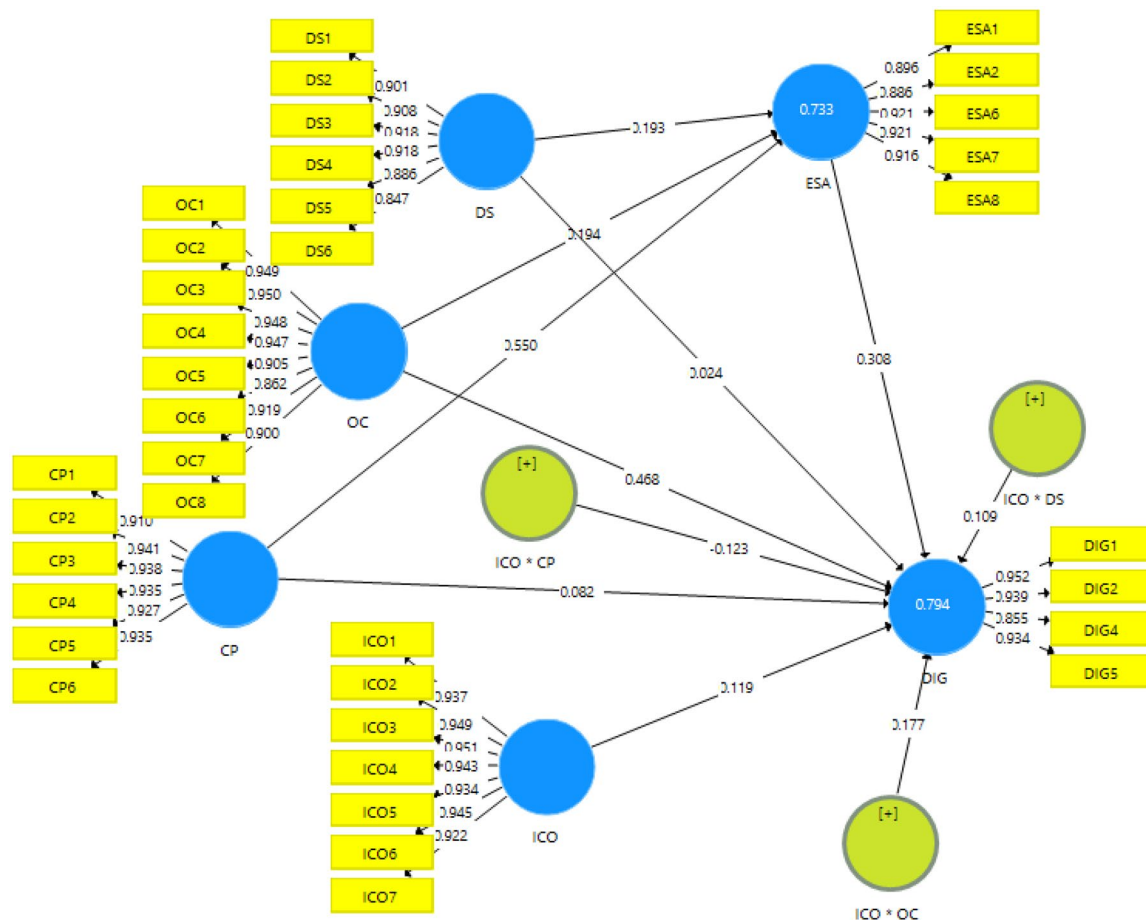


Figure 2. Structural model. CP: competitive pressure; DIG: SME digitization; DS: digital strategy; ESA: owner/managers' skill and attitude; ICO: impact of COVID-19; OC: organisational culture.

### Test for the direct hypothesized paths

After achieving a valid and reliable measurement model, the proposed hypothesized paths of the study were tested through the structural model. Additionally, the mediating role of owner/managers' skills and the moderating influence of COVID-19 was also assessed through the structural model. The path coefficients ( $\beta$ ) and statistical significance of the results are shown in Table 5. The result shows that the direct hypothesized path between digital strategy and digitization of SMEs is statistically insignificant ( $\beta=0.024$ ,  $t=0.499$ ,  $p>0.05$ ). Thus, H1 was not supported. However, H2, which posits a positive and significant relationship between organisational culture and SME digitization, was found to be statistically significant ( $\beta=0.468$ ,  $t=6.527$ ,  $p<0.01$ ), providing support for H2. Hypothesis 3, which postulates that competitive pressure will directly and significantly influence SMEs digitization drive, was not supported ( $\beta=0.082$ ,  $t=1.010$ ,  $p>0.05$ ).



**Table 3.** Discriminant validity through Fornell and Larcker (1981) criterion.

	1	2	3	4	5	6
CP	0.931					
DIG	0.603	0.921				
DS	0.622	0.571	0.897			
ESA	0.533	0.603	0.649	0.908		
ICO	0.466	0.575	0.591	0.660	0.940	
OC	0.339	0.646	0.583	0.768	0.477	0.923

CP: competitive pressure; DIG: SME digitization; DS: digital strategy; ESA: owner/managers' skill and attitude; ICO: impact of COVID-19; OC: organisational culture.

**Table 4.** Discriminant validity through HTMT criterion.

	1	2	3	4	5	6
CP						
DIG	0.837					
DS	0.646	0.600				
ESA	0.870	0.848	0.682			
ICO	0.889	0.806	0.610	0.893		
OC	0.863	0.877	0.605	0.799	0.795	

CP: competitive pressure; DIG: SME digitization; DS: digital strategy; ESA: owner/managers' skill and attitude; ICO: impact of COVID-19; OC: organisational culture.

**Table 5.** Test for the direct hypothesized paths.

Hypothesis	Path relationship	$\beta$	t-Value	p-Value	Decision
H1	Digital strategy $\rightarrow$ SME digitization	0.024	0.499	0.618	Not supports
H2	Organisational culture $\rightarrow$ SME digitization	0.468	6.527	0.000	Not supported
H3	Competitive pressure $\rightarrow$ SME digitization	0.082	1.010	0.313	Not supported

**Table 6.** Result of mediation analysis.

Hypothesis	Relational paths	$\beta$	t-Statistics	p-Value	Decision
H4	DS $\rightarrow$ ESA $\rightarrow$ DIG	0.060	3.438	0.001	Full mediation
H5	OC $\rightarrow$ ESA $\rightarrow$ DIG	0.060	2.249	0.025	Partial mediation
H6	CP $\rightarrow$ ESA $\rightarrow$ DIG	0.170	3.076	0.002	Full mediation

CP: competitive pressure; DIG: SME digitization; DS: digital strategy; ESA: owner/managers' skill and attitude; ICO: impact of COVID-19; OC: organisational culture.

### Test for mediation

The results of the mediation analysis are displayed in Table 6. The result ( $\beta=0.060$ ,  $t=3.438$ ,  $p<0.01$ ) shows that owner/managers' skills and attitudes fully mediate the relationship between digital strategy and SME digitization, supporting H4. Thus, only the indirect relationship through the mediator variable of owner/managers' skills and attitude towards digitization of the organization was found to be significant. This suggests that strategies by SMEs to digitize their operations are more likely to produce the desired results when owners/managers have the requisite skills and positive attitude or commitment towards such efforts. The results further show that owner/managers' skills and attitude towards digitization efforts ( $\beta=0.060$ ,  $t=2.249$ ,  $p<0.05$ ) partially mediate the relationship between organizational culture and SME digitization supporting H5. The mediation result also shows that the intervening variable (owner/managers' skills and attitude) fully mediates the relationship between competitive pressure and SMEs' digitization ( $\beta=0.170$ ,  $t=3.076$ ,  $p<0.05$ ). Thus, H6 was supported.

### Moderation analysis

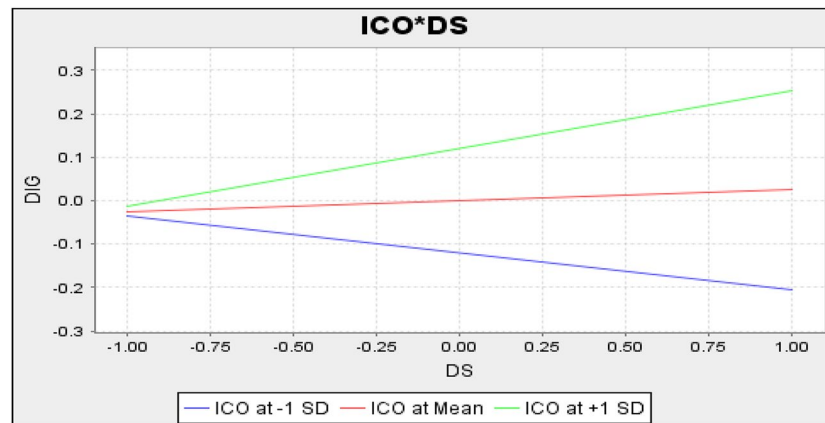
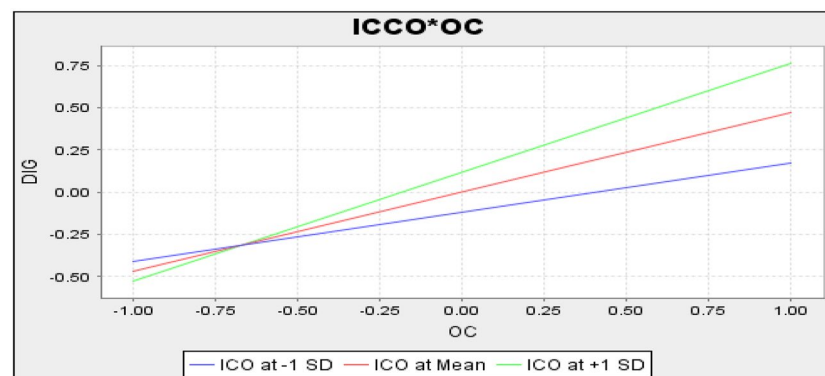
Next, the moderating influence of the COVID-19 pandemic on the relationships between the independent variables (digital strategy, organizational culture, and competitive pressure) and the dependent variable (SME digitization) was investigated. The results in Table 7 show that the interaction effect of the COVID-19 pandemic and digitization strategy was significantly related to SMEs' digitization intention ( $\beta=0.109$ ,  $t=2.691$ ,  $p<0.05$ ). Thus, the COVID-19 pandemic significantly moderated the relationship between the digital strategy of SMEs and their digitization intention. Specifically, Figure 3 shows that the



**Table 7.** Moderating analysis.

Hypothesis	Hypothesised paths	$\beta$	t-Value	p-Value	Result
H7	ICO * DS $\rightarrow$ DIG	0.109	2.691	0.007	Supported
H8	ICO * OC $\rightarrow$ DIG	0.177	2.116	0.035	Supported
H9	ICO * CP $\rightarrow$ DIG	-0.123	1.571	0.117	Not supported

CP: competitive pressure; DIG: SME digitization; DS: digital strategy; ESA: owner/managers' skill and attitude; ICO: impact of COVID-19; OC: organisational culture.

**Figure 3.** The moderating effect of the COVID-19 on SMEs' willingness to strategize for digitization.**Figure 4.** The moderating effect of COVID-19 on organisational culture.

pandemic has a higher influence on SMEs' willingness to design strategies for digitizing their operations, particularly those in the restaurant sector. These results supported hypothesis H7.

Additionally, the moderation analysis shows that the COVID-19 pandemic positively and significantly influences the interaction between organizational culture and SME digitization ( $\beta=0.177$ ,  $t=2.116$ ,  $p<0.05$ ). The simple slope (Figure 4) shows that the pandemic strongly influences SMEs' preparedness to adopt a culture that will embrace digitization. Thus, H8 was also supported. However, the results show no moderation effect of the pandemic on the relationship between competitive pressure and digitization intentions, thereby providing no support for H9.

## Discussion

Though several studies have been conducted on the devastating effect of the COVID-19 pandemic on businesses (including SMEs), little attention has been given to understanding the pandemic's influence on the digitization efforts of SMEs. In other words, could the pandemic be a blessing in disguise to speed up SMEs' digitization? The study, thus, contributes to the growing body of knowledge on the



pandemic's impact by examining its moderating role on the digitization intention of SMEs, specifically in the restaurant sub-sector of the hospitality industry. The study further examines the mediating effect of owner/managers' skills and attitudes on the relationship between digital strategy, organizational culture, competitive pressure, and SME digitization.

The study's findings confirmed two out of the four hypotheses in the direct relationship. Specifically, organizational culture and owners/managers' skills and attitudes were significantly and positively related to SMEs' digitization efforts. This suggests that SMEs with an organizational culture that seeks to embrace digital creativity and innovation coupled with requisite skills and positive attitudes of owners/managers towards digitization are much more likely to achieve a positive result. This finding is consistent with the findings of some prior studies (Isensee et al., 2020; Nikolskaya, 2021; Park & Saraf, 2016). These studies have established that the culture within an SME setting, particularly depending on the technological orientation of the owner/manager, is a significant factor in the SME digitization drive. The current study confirms this assertion.

Surprisingly, the study found no direct significant relationship between digital strategy and the digitization of SMEs in the restaurant sector in Ghana. This finding is inconsistent with past studies that established a direct relationship between having a clear strategy for digitization and actual digitization of SMEs (Blengini, 2020; Isensee et al., 2020; Kawiana et al., 2021). The results suggest that having a strategy or clear plan for digitization is not enough to achieve the desired results in terms of digitization. In other words, other factors may be necessary to bring digital strategy to fruition. Equally surprising is the insignificant direct relationship between competitive pressure and digitization intention of SMEs in the restaurant sector in Ghana, contradicting past findings. Past studies have established a positive direct link between what competitors are doing and SMEs' adoption of new technologies (AlGhamdi et al., 2013; Nguyen et al., 2015; Saleh & Manjunath, 2020; Skafi et al., 2020; Tarute et al., 2018). The current results suggest that in the restaurant sector, where competition is mostly based on food quality, taste, and service quality (Kankam-Kwarteng et al., 2020; Mensah & Mensah, 2018), competitors' digitization initiatives are not a direct, compelling driver for SMEs digitization within the industry.

However, the mediation analysis results show that owner/managers' digital skills and attitudes are a significant intervening variable in SMEs' digitization drive. Specifically, owner/managers' skills and attitudes positively and significantly mediate the relationships between SME digitization and the independent variables (digital strategy, organizational culture, and competitive pressure). This finding confirms the findings of previous studies that found owner/managers' skills as an important variable for firm performance and competitiveness of SMEs (Beliaeva et al., 2019; Eller et al., 2020; Louw & Nieuwenhuizen, 2020; Nguyen et al., 2015; Shafiee, 2021). The study for instance corroborates the findings of Shafiee (2021) that IT knowledge of managers of SMEs an important factor for the adoption of important tools, such as digital tools that aid in attaining competitive advantage.

In the current study, owner/managers' skills and attitudes fully mediate the relationship between competitive pressure and SME digitization. Thus, only the indirect relationship was significant through the mediating variable (owner/managers' skills and attitude). This implies that until owners/managers have the requisite digital skills and a positive attitude towards the digitization efforts of the organization, competitors' digitization initiatives will mean less for most of the study's respondents. Owner/managers' digital skills are, thus, an essential resource in the SME digitization effort.

Owner/managers' skills and attitudes also fully mediate the relationship between digital strategy and SME digitization. This implies that having a digital strategy coupled with owner/managers' requisite skills and positive attitude towards the firm's digitization efforts is necessary to transform the digital strategy into realization. In other words, designing a digitalization strategy alone is insufficient to achieve digitization results. The strategy should be in tandem with owners/managers' skills and attitudes. This finding disagrees with past works that found a direct positive relationship between digital strategy and SME digitization (Alraja et al., 2021; Becker & Schmid, 2020; Bukari et al., 2022; Khayer et al., 2021; Louw & Nieuwenhuizen, 2020). This study shows that owner/managers' skills and attitudes are vital ingredients in translating digital strategy into fruition. The results further show that owner/managers' skills and attitudes partially mediate the relationship between organizational culture and SME digitization. This further strengthens the point that an environment or organizational culture that allows or encourages owners/managers to acquire the needed digital skills is more likely to support SMEs' digitization goals (Blengini, 2020; Bukari et al., 2023; Isensee et al., 2020; Kawiana et al., 2021).



From the moderating results, the study found that the COVID-19 pandemic has a statistically significant and positive moderating effect on the link between organizational culture, digital strategy, and SME digitization aim. In other words, the pandemic is a positive and significant propelling factor for SMEs' digitization. Thus, the result shows that the COVID-19 pandemic has positively influenced or provided an opportunity for SMEs in the restaurant sector, particularly in emerging economies, to adopt cultures and develop strategies to digitize their operations. This finding parallels the findings of previous studies that found external environmental factors as a significant moderating variable for SMEs' performance (Beliaeva et al., 2019; Pulka et al., 2021; Tarute et al., 2018). The study, however, found no significant moderating influence of the pandemic on the relationship between competitive pressure and SME digitization. This could be explained by the fact that in unexpected crises, as presented by the COVID-19 pandemic, the focus of most businesses is to strategize and realign their operations to overcome the devastating effects of the pandemic. This finding supports Aiemwongnukul's (2014) suggestion that firms are more likely to focus on internal strategies and capabilities than competitor strategies in natural disasters.

## Conclusion

The study aimed to investigate the impact of COVID-19 on small and medium-sized enterprises (SMEs) in the restaurant sector and their intentions to adopt digital technologies for business operations. The study further examined the mediating role of owners/managers' IT skills and attitudes towards digitization on the relationship between the antecedents of digitization and SME digitization. The result shows that owner/manager IT skill, attitude, and commitment to digitization efforts significantly mediate the relationship between all the antecedents of business digitization examined in the study (organizational culture, digital strategy, and competitive pressure) and restaurant SMEs' digitization. The result suggests that for these antecedents to yield the necessary result (i.e. lead to SMEs digitizing their business operations), owner/manager IT skill must be present, without which The study, thus, contributes to the literature by throwing light on a key variable that could significantly SMEs adoption of digital technologies, particularly in less developed economies like Ghana. The result further shows that the devastating impact of the COVID-19 pandemic significantly strengthened the relationship between digital strategy, organizational culture, and digitization drive of restaurant SMEs. This implies that SMEs are more willing to take and implement strategies to digitalize their operations due to the impact COVID-19 has had on them.

## Implications for theory

Theoretically, the study contributes to the growing body of knowledge on the impact of the COVID-19 pandemic by examining the moderating influence of the pandemic on SME digitization. The study empirically demonstrates that though the pandemic wreaks havoc on SMEs, it is a positive catalyst for SME digitization. The study further contributes to the literature by investigating the mediating role of owners/managers' digital skills and attitudes towards the digitization efforts of SMEs. The study shows that owner/managers' skills and attitudes are a positive, significant mediating variable for SME digitization. From the perspective of the RBV, the study shows that investing in owner/managers' digital skills could be a valuable internal resource, which is difficult to imitate, providing a competitive advantage in terms of the SMEs' digitization effort. Additionally, the study contextually contributes to the SME digitization literature from an emerging market perspective in Ghana by investigating the moderating role of the COVID-19 pandemic and the mediating role of owner/managers' skills in SME digitization.

## Implications for practice

The study also provides some practical implications for managers of SMEs in the restaurant sector. First, the moderation results show that the COVID-19 pandemic positively moderates the relationship between digital strategy, organizational culture, and SME digitization. This suggests that digitizing the operations of the restaurants in the COVID-19 era is most likely to achieve significant results. Thus, owner/managers, customers, and other key stakeholders will likely embrace digitization efforts due to the pandemic. Managers should, therefore, take advantage of the pandemic era and design strategies for the



digitization of their operations. Additionally, the positive moderation influence of the pandemic on digitization shows a paradigm shift in the operations of the restaurant sector. Given the high cost of setting up brick and mortar facilities, the COVID-19 pandemic provides the opportunity for restaurant SMEs to move from the market place (brick and mortar) to the virtual market space. Secondly, the mediation analysis results show that owner/managers' skills and attitudes is a significant intervening variable in SMEs' digitization drives. This implies that SMEs are more likely to achieve their digitization results when owner/managers have the requisite digital skills and a positive attitude towards the digitization efforts. Therefore, SMEs seeking to digitize their operations should invest in the digital skills of their owner/managers. Measures should also be put in place to encourage owner/managers of the organization to have a positive attitude and interest in the digitization efforts of the organization.

### ***Implication for policymakers***

The positive significant moderating effect of the pandemic on the relationships between digital strategy, organizational culture, and digitization drive of SMEs suggests that they are more willing to accept interventions aimed at digitizing their operations. Policymakers should, therefore, take advantage and leverage the devastating effect of the pandemic to initiate, introduce, and implement policies, such as IT training for managers of SMEs, data packages for SMEs, or special tax rebates for SMEs that have adopted specific digital technologies.

### ***Limitations and future research directions***

The study has some limitations despite its contributions. First, the study is limited to a single hospitality industry sector. Additional studies are required to analyze multi-source data from other SMEs to deepen our understanding of the influence of the COVID-19 pandemic on SME digitization. Other moderating and mediating variables could also be examined. For instance, examining the moderating effect of other external environmental factors, such as governments' digitization policy by future studies will significantly contribute to knowledge. Being market-oriented has been identified as an important factor for SME performance. Will being market-orientated play a role in the digitization drive of SMEs? Future study is needed to examine the mediating role of market orientation on SME digitization.

### ***Disclosure statement***

No potential conflict of interest was reported by the author(s).

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