



TECHNOLOGICAL CAPABILITY AND ORGANIZATIONAL SURVIVAL OF HOTELS IN PORT HARCOURT, RIVERS STATE, NIGERIA

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Abstract: The COVID-19 pandemic has disrupted the functioning as well as survival of hotels around the world. The Lockdown policy of most countries during the COVID-19 crisis has brought the hospitality industry to a near standstill and in the post COVID-19 era, only hotels possessing technological capabilities would sail across this crisis and survive. Therefore, this study examined the relationship between technological capability and organizational survival of hotels in Port Harcourt, Rivers State, Nigeria. The study used a cross sectional design involving managers, supervisors and unit heads of 20 selected hotels in Port Harcourt. A sample size of 186 was adopted through the Krejcie and Morgan table and the simple random technique was used. After data cleaning, only data of 166 respondents were finally used for data analysis. Descriptive statistics and Spearman's rank correlation were used for data analysis and hypothesis testing. The study findings confirm that there is a positive significant relationship between technological capability and organizational survival of hotels in Port Harcourt. The study thus concludes that technological capability bears a positive and significant influence on organizational survival of hotels in Port Harcourt. The study recommends that Management of Hotels should seriously invest heavily in building their technological capability especially going into the post COVID-19 era where technology is expected to drive business processes bearing in mind the need for minimal human interface.

Keywords: Technological Capability, Organizational Survival, Adaptability, Dynamic Capability and Resource Acquisition

INTRODUCTION

The hotel industry is vulnerable to threats posed by unexpected catastrophes such as epidemics, natural disasters, and terrorist attacks (Hung, Mark, Yeung, Chan & Graham; Chan & Lam, 2013). Different types of catastrophes bring distinct industry consequences and prompt hoteliers to take measures to tackle various challenges caused by crises. For example, hoteliers in Hong Kong introduced toughened security by upgrading the closed circuit television (CCTV) systems and intensifying safety training for hotel employees following

the 9/11 attacks (Chan and Lam, 2013). After the Severe Acute Respiratory Syndrome (SARS) outbreak, the Korean hotel industry installed new hygiene equipment and offered employees education programs concerning health awareness (Kim, Chun & Lee, 2005).

Amadi (2008) cited in Adim, Tamunomiebi and Akintokunbo (2018) asserted that most travel and tourism activities involve optional expenses. During times of economic recessions, people like to conserve money to cover the essentials of life such as food, shelter and family necessities. Hospitality businesses, which will



survive in the periods of economic doom, are those with the ability to adapt to new circumstances. This foregoing assertion is exacerbated by the current ravaging coronavirus disease (COVID-19). The hotels and hospitality sector being a major revenue earner, with potential of creating thousands of jobs annually is hard hit. The hotels and hospital subsector of the tourism industry have also had their own share of the challenges from the covid-19 lockdown policy of the government in several countries. With government announcement of “stay-at-home policy” and “social distancing” movement restriction, most restaurant businesses were greatly affected. This led to rapid shutdowns in cities and states to control the spread of the covid-19 disease, which threw many restaurants and hotels across the country into sudden shock. Many hotels have recorded decline in bookings due to the health scare, while restaurants in major towns in the country are now restricted to offering only delivery services. Since most restaurants operate with fresh food products, which are difficult to keep in stock as demand fluctuates, they are bound to incur losses (Oruonye& Ahmed, 2020).

The spread of COVID-19 and large-scale travel restrictions continue to wreak havoc on the global tourism and hospitality industry. According to an open letter from Gloria Guevara, President and CEO of the World Travel & Tourism Council, “50 million jobs globally are at risk” because of the pandemic. The letter further indicates that the travel and tourism sector is “already facing collapse” and is “in a fight for survival” due to the COVID-19 global health crisis (Guevara, 2020). Hotels are especially susceptible to reduced tourism and travel along with a slowdown in economic activity (Hoisington, 2020). Due to the highly contagious nature of the SARS-CoV-2 virus, ensuring a safe social distance between people has proven to be an effective way to reduce viral infections in communities (Fong, Gao, Wong, Xiao, Shiu, Ryu& Cowling, 2020). Initially implemented with the onset of

COVID-19 (believed to have originated in Wuhan, China), social distancing measures include the closing public areas (such as parks and plazas) and the maintenance of physical distances between people in areas that cannot be closed (such as markets and health care facilities). These social distancing practices have had a major impact on industries that rely on high levels of human interaction, such as hospitality and tourism, which are suffering greatly during this period (Hoque, Shikha, Hasanat, Arif& Hamid, 2020). History has shown that a crisis can bring about technological innovation and development (Colombo, Piva, Quas& Rossi-Lamastra, 2016) and those only agile firms taking the opportunity provided will survive. The current global crises caused by the novel coronavirus disease pandemic poses a serious threat to the corporate survival of many hotels around the world and only hotels that are able to quickly reconfigure their operations and possessing technological capabilities would survive and compete in the post COVID-19 era..

Oruwari, Jev and Owei (2002) define technology capability as the capability needed to acquire, assimilate, use, adapt, change or create technology. According to Afuah (2002) and Zhou and Wu (2010) when a firm builds its technological capability, it invests substantial resources in research and development (R&D), which involves the discovery of new products, the accumulation of knowledge stores, and the training of technical personnel. A firm’s technological capability is developed over time and accumulated through its past experience. Technological capability have been an integral strategic resources used by organizations to achieve competitive advantage in the industry over the past era (ShamsuddinWahab, Abdullah &Kamaruddin, 2012). In addition organizations that have higher technological skills appear to perform at the highest level, and also tend to be more innovative and creative. They achieve a great efficiency gain by inventing process innovations (Terjesen, Patel &Covin, 2011), and also engage in high



differentiation strategy by creating products to respond to the evolving market.

A high technological capability helps in achieving competitive advantage adopting the differentiation strategy by improving the quality of the product, adding new features and values to the product, and also improving the economies of scale of the organization (Chesaro, 2013). For instance, as argued by Huang and Rust (2018) the shifting hotel service landscape offers an opportunity for hoteliers to better serve and delight guests in innovative ways through the possession of technological capabilities like artificial intelligence (AI) and robotics. The application of AI and robotics in hotels represents a new service concept (Kuo, Chen & Tseng, 2017) and an emerging research field (Tuominen and Ascencao, 2016). The purpose of this study therefore is to

examine the relationship between technological capability and organizational survival of hotels in Port Harcourt, Nigeria.

This study also provides answers to the following research questions:

- i. What is the relationship between technological capability and adaptability of hotels in Port Harcourt, Nigeria?
- ii. What is the relationship between technological capability and dynamic capability of hotels in Port Harcourt, Nigeria?
- iii. What is the relationship between technological capability and resource acquisition of hotels in Port Harcourt, Nigeria?

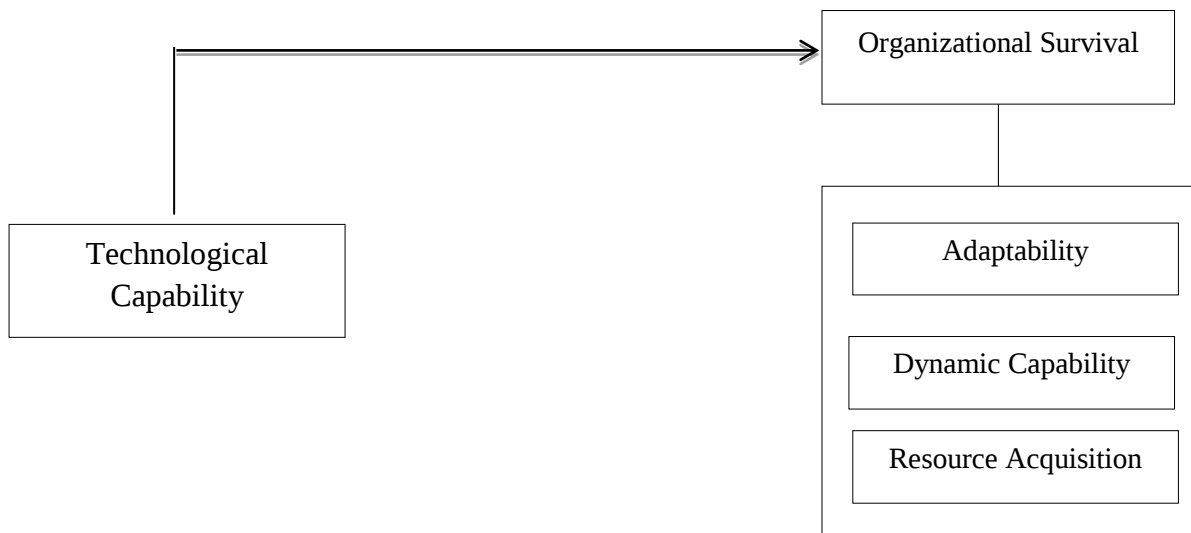


Fig.1 Operational framework for the relationship between technological capability and organizational survival

Source: Author's Desk Research, 2020



LITERATURE REVIEW

Technological Capability (TC)

Technological Capability is defined in different forms in the literature. According to Cerulli (2014), Technological Capability is acquiring, harmonizing and improving information and capabilities and providing firms with sustainable innovative capacity and market success. Sobanke, Ilori, and Adegbite (2012) define Technological Capability as the sum of a firm's specific efforts and strategies regarding choosing, establishing, comprehending, orientating, enhancing and improving technology. Similarly, Terece, Pisano, and Shuen (1997) define Technological Capability as the ability of an enterprise to conduct technical activities and business, including efficiently developing a new product or process and other activities. Both technology and the ability to compete with technology-based capabilities underlie a firm's ability to be successful and maintain its continuity. Firms having Technological Capability will create effective processes in the firm by using these capabilities and effective processes, naturally, which will increase both the firm's innovation (product and process) performance and its general competitiveness strength (Ortega, 2010).

Firms are separated according to their technology capabilities. Vega-Jurado, Gutierrez-Gracia, Fernandez-de-Lucio, and Manjarres-Henriquez (2008), who consider innovation a potential source of competitive advantage, emphasize that Technological Capability typically measured with research and development—is a determinant of innovation and performance. Technological developments may change market dynamics, weaken the positional superiority of established firms and enable new firms to successfully enter the market (Han et al., 1998). Firms have to stay agile to collect customer and competition information and

to make use of the opportunities made available by new technologies so that they can survive and compete with other firms in these types of markets (Li & Calantone, 1998). Although there are contradictory findings in the literature regarding the impact of Technological Capability on firms' learning strategies and types of innovation (Zhou & Wu, 2010), the general opinion on this topic is that Technological Capability has an indirect or direct impact on new product development (Moorman & Slotegraaf, 1999).

Organizational Survival

Gabriel & Arboló (2015) argue that organizational survival refers to sustained learning and adaptive characteristics resulting from the organizations tendency for continued adjustment to seen and unforeseen changes, in the business environment. Ogunro (2014) cited in Gabriel, 2015 dwells extensively on the survivability of the organization as a product of its success in surmounting identified environmental challenges and seizure of opportunities. The business to this stage has proved that it is a workable entity and has enough customers and it satisfies them sufficiently with its products and services. Long term survival of organization and not the financial performance should indicate success of the organization.

Organization survival refers to the success of organizations being capable of achieving their objectives and goals and maintain it over a long period of time (Nwosu 2014). The goal of organizational survival underpins all goals (Adewale 2011). The most objective way to measure survival in organizations is to observe their continuing existence (Sheppard 2016). Survival of the organization in a vibrant and competitive business environment depends on how effectively the organizations learn to adapt itself to the environment and capitalize on its resources fully both human and material (Lee 2006 in Akani, 2015).



The literature on the issues surrounding the effect of coronavirus on/and business survival or performance is quite limited. The one identified, highlighted the impact of coronavirus outbreak on the global economy, where the emphasis was made on the role of social network sites in sharing the customers' and businesses' information and concerns about the coronavirus outbreak (Ahani&Nilashi, 2020). Other scholars were more concerned about the survival of businesses through inventions and innovation, for example, Cefis, and Marsili (2019), Ortiz-Villajos and Sotoca (2018) and Wojan, Crown and Rupasingha (2019). The Covid-19 pandemic has created survival challenges for businesses which has resulted in mass production shutdowns and supply chain disruptions causing global ripple effects across all economic sectors in a manner that was never expected. It is projected that the spread of the disease will have serious humanitarian challenges to the countries of the world and especially Africa and Nigeria in particular. Economically, the effects have already been felt as demand for Africa's raw materials and commodities in global market has declined and Africa's access to industrial components and manufactured goods from other regions of the world has been hampered. This is causing further uncertainty in a continent already grappling with widespread geopolitical and economic instability (Morn  et al., 2020 cited in Oruonye& Ahmed, 2020).

Measures of Organizational Survival

Adaptability

Adaptability is an aspect of resilience that reflects, learning, flexibility to experiment and adopt novel solutions, and the development of generalized responses to broad classes of challenges (Walter, Auer & Ritter, 2006). Adaptability is addressed in this context through two approaches; socio environmental and organizational (McManus, Seville, Vargo&Brundsdon,2008). An organization's ability to adapt is at the heart of their ability to display resilient characteristics. Starr, Newfrock

and Delurey(2003) discuss the importance of adaptation and notes that the aim is to create advantages over less adaptive competitors. This suggests that adaptability is also linked to competitiveness. Dalziell and Mc Manus (2004) define adaptability as the engagement and involvement of organizational staff so that they are responsible, accountable and occupied with developing the organization's resilience through their work because they understand the links between the organization's resilience and its long term success. It is the ability of the system to respond to the changes in its external environment and to recover from damage of internal structures with the system that affect its ability to achieve its purpose.

Dynamic Capability

Dynamic capability is the dynamic ability to change or reconfigure existing substantive capabilities routines and resources in the manner envisioned and deemed appropriate by the firm's principal decision maker(s) (Zahra, Sapienza &Davidsson, 2006).According to Eisenhardt and Martin (2000) with dynamic capability, firms can create new resource configurations as markets emerge, collide, split, evolve, and die. Possession of dynamic capabilities alone does not necessarily provide any substantial advantage to firms, but being able to manage the dynamic capabilities to achieve their strategic goals provides performance related advantages to firms. Having dynamic capabilities to redeploy or configure those substantive capabilities according to the strategic goals will help firms grow and survive as they face changes in the internal and external environment (Zahra, et al, 2006). Dynamic capability can be distinguished from operation capability which pattern to the current operations of organization. Dynamic capabilities by contrast refer to the capacity of an organization to purposely create, extend or modify its resource base (Helfat, Finkelstein, Mitchell, Peteraf, Singh, Teece& Winter, 2007).



Resource Acquisition

While goals focus on outputs, organization should also be viewed from the perspective of its ability to acquire inputs (resources), process that inputs channel the outputs and maintain the stability and balance (Khanka,2008). This approach of measuring the survival of an organization could also be called “System approach” or input-through put-output approach. According to Cunningham (2001), the systems resource model defines the organization as a network of interrelated systems. Extending his view, he opined that the outputs of one subsystem may become the input of another subsystem; the organizational system functions effectively to the degree that its subsystems are in harmony and are coordinated to work together.

The process of acquiring resources, such as financial, physical, human, and intangible resources from others, is commonly acknowledged to be a vital entrepreneurial task during new venture creation (Shane 2003). Obtaining adequate resources not only enables a new venture to pursue its identified opportunities, but also facilitates its ability to survive, grow, and generate profits in the face of competition (Shane 2003). Competition is normally harder on a new venture because of its inherent resource constraints (Hughes, Ireland, and Morgan 2007).

Technological Capability and Organizational Survival

Empirically, there are only mixed results about the impact of innovative activity, such as R&D and patent, on firm’s survival. Positive relationship is found in Esteve-Perez and Manez-Castillejo (2008) and Ortega-Argiles and Moreno (2007) and Cockburn and Wager (2007), while negative one is found in Buddelmeyer *et. al.* (2010), Motohashi (2011) and Pederzoli *et. al.* (2011). A negative factor may come from substantial risk associated with innovative activities, particularly for small and young firms. Therefore, we look into the organization of innovative activities, such as external R&D collaboration, in order to make a proper understanding of the balance

between the risk factor (negative impact on firm’s survival) and the technological capability factor (positive impact on firm’s survival).

However, it is interesting to see that the impact of technological capability is not always positive to firm’s survival. Esteve-Perez and Manez-Castillejo (2008) and Ortega-Argiles and Moreno (2007), which use R&D as an index for technological capability showed that the positive relationship between R&D and company survival is particularly seen in the hi-tech industry. The former literature deals with internet service providers, again high-tech, and finds positive relationship. However, Buddelmeyer *et. al.* (2010), analyses the impact of patent application and patent stock separately, and find negative impact of recent patent application on firm’s survival, after controlling for the impact of patent stock (with positive relationship with firm’s survival). They argue that uncertainty embodies in radical innovation activity surpasses the capability effect, implied by patenting.

It is noteworthy to state that in the future, robots serving in tourism and hospitality may change the guests experience in terms of expectations, service quality, and image (Ivanov & Webster, 2019b). Research has shown how technologies can mediate and, to some extent, enhance tourism experiences (Zhang, 2018), which is equally applicable to robotics. Judging from attitudes towards robots in China during the pandemic crisis, people’s acceptance of high-tech services may be greater than some scholars have speculated. For example, robots dancing with patients in the Wuhan Fangcang field hospital have been widely viewed as a benefit. Tourists, on the other hand, are more likely to accept the technology if it is trustworthy, free of risk, competent, and easy to use (Kaushik, Agrawal & Rahman, 2015). The relationship of “tourists – guides – destinations” will increasingly include “tourists – robots – destinations” in a post COVID-19 world.



Despite recent accomplishments, researchers should dive deeper into the applications of technological capabilities such as mechanical Artificial Intelligence, thinking Artificial Intelligence, and feeling Artificial Intelligence for service delivery, service creation, and service interaction at hotels (Huang & Rust, 2020). More specifically, different types of Artificial Intelligence (mechanical, thinking, and feeling) might open up distinct research streams at the intersection of health crises and hotel management, in light of the COVID-19 pandemic. Hoteliers should seek to harness the power of big data to establish or maintain competitive advantages through personalized customer service (Mariani, 2019; Mariani& Perez, 2020). As the use of thinking AI expands in the hotel sector, the domain of business intelligence and big data driven analysis should be advanced in the hotel sector, because data is the raw material on which AI is built (Mariani, 2019; Mariani and Perez, 2020). One research direction in the specific context of epidemics is how hotels could generate real-time data to develop a prediction and alarm system of infectious diseases based on big data and analytical AI in collaboration with computer and data scientists.

The foregoing argument gave rise to the following hypotheses:

- Ho₁:** There is no significant relationship between technological capability and adaptability of hotels in Port Harcourt, Nigeria.
- Ho₂:** There is no significant relationship between technological capability and dynamic capability of hotels in Port Harcourt, Nigeria.

- Ho₃:** There is no significant relationship between technological capability and resource acquisition of hotels in Port Harcourt, Nigeria.

METHODOLOGY

The target population of the study is all the hotels in Rivers state. An accessible population was selected from the 159 hotels in Port Harcourt registered with the Rivers State Ministry of Culture and Tourism. A total of 20 hotels were purposively selected in Port Harcourt served as the accessible population of the study. The study focused attention on officers with job titles such as hotel managers, operations managers, heads of departments, unit heads and duty managers or supervisors. All those within these categories constituted the elements of our study population. A total of 350 workers were obtained from the Human Resources Department of the hotels which represent the sample frame. The sample size was obtained using the Krejcie and Morgan (1970) table for determining minimum returned sample size for a given population. For our population, the table placed our sample size at one hundred and sixty nine (186). The sample size therefore was 186 and was used for the study. The sampling procedure to be used in this study is the purposive sampling technique which focused on managers and supervisors. Descriptive statistics and Spearman's rank correlation were used for data analysis and hypothesis testing with the aid of the SPSS Package version 23.0



Table 1. Reliability statistics for the instruments

S/No	Dimensions/Measures of the study variable	Number of items	Number of cases	Cronbach's Alpha
1	Innovation culture	5	166	0.868
2	Adaptability	5	166	0.878
3	Dynamic capability	5	166	0.906
4	Resource acquisition	5	166	0.898

Source: Research data, 2020

DATA ANALYSIS AND RESULTS

Bivariate Analysis

The test of hypotheses was carried out using the Spearman rank order correlation tool at a 95% confidence interval. We have relied on the Spearman Rank (*rho*) statistic to undertake the analysis. The 0.05 significance level is adopted as criterion for the probability of either accepting the null hypotheses at ($p>0.05$) or rejecting the null hypotheses at ($p<0.05$). We shall commence by first presenting a proof of existing relationships.

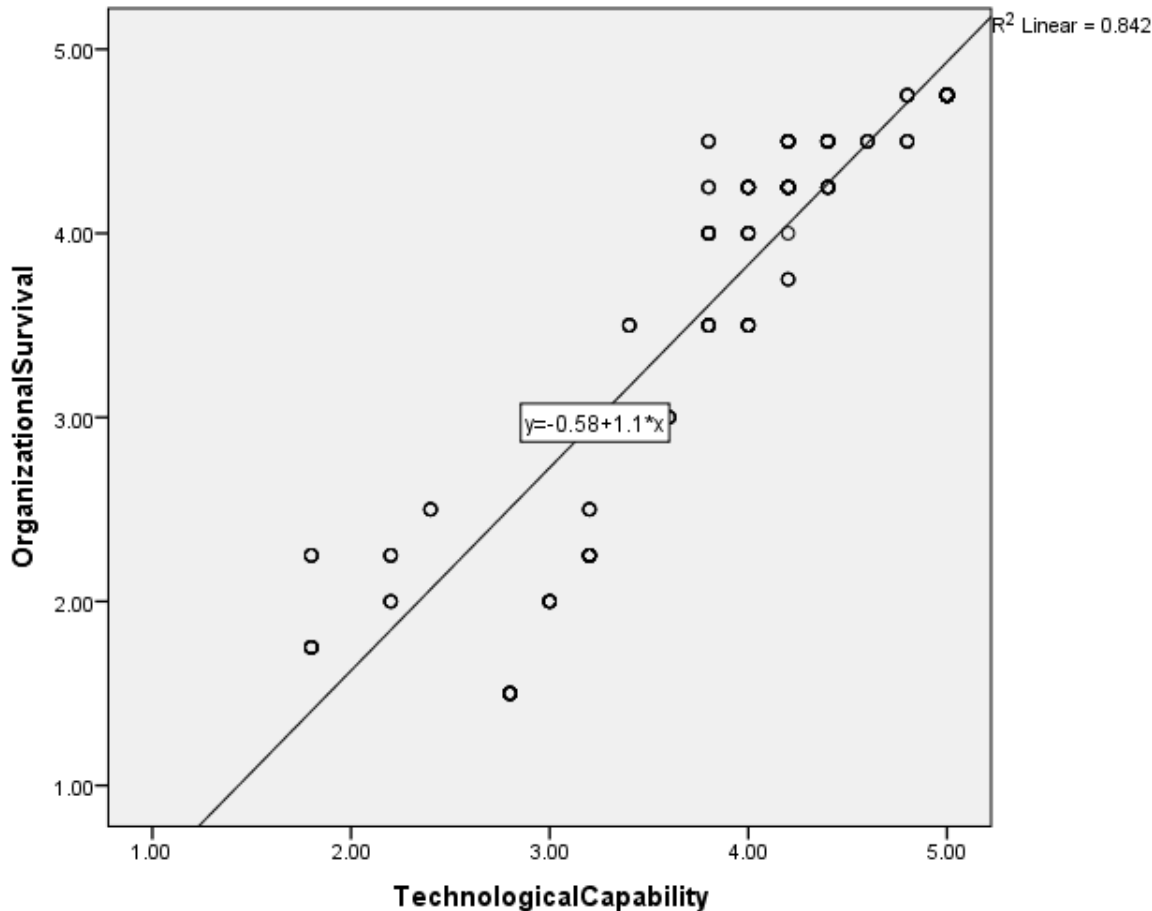


Figure 1 scatter plot relationship between technological capability and organizational survival

The scatter plot graph shows at R^2 linear value of (0.842) depicting a very strong viable and positive relationship between the two constructs. The implication is that an increase in technological capability simultaneously brings about an increase in the level of organizational survival. The scatter diagram has provided vivid evaluation of the closeness of the relationship among the pairs of variables through the nature of their concentration.



Table 2: Correlation Matrix for Technological Capability and Organizational Survival

			Technological capability	Adaptability	Dynamic Capability	Resource Acquisition
Spearman's rho	Technological Capability	Correlation Coefficient	1.000	.581**	.773**	.232**
		Sig. (2-tailed)	.	.000	.000	.003
		N	166	166	166	166
	Adaptability	Correlation Coefficient	.581**	1.000	.668**	.452**
		Sig. (2-tailed)	.000	.	.000	.000
		N	166	166	166	166
	Dynamic Capability	Correlation Coefficient	.773**	.668**	1.000	.257**
		Sig. (2-tailed)	.000	.000	.	.001
		N	166	166	166	166
	Resource Acquisition	Correlation Coefficient	.232**	.452**	.257**	1.000
		Sig. (2-tailed)	.003	.000	.001	.
		N	166	166	166	166

** . Correlation is significant at the 0.01 level (2-tailed).

Source: SPSS version 23.0 Output

The table above illustrates the test for the three previously postulated bivariate hypothetical statements.

Ho₁: There is no significant relationship between technological capability and adaptability of hotels in Port Harcourt.

The correlation coefficient (r) shows that there is a significant relationship between technological capability and adaptability. The *rho* value 0.581 indicates this relationship and it is significant at $p = 0.000 < 0.05$. The correlation coefficient represents a moderate correlation between the variable. Therefore, based on empirical findings the null hypothesis earlier stated is hereby rejected and the alternate upheld. Thus, there is a

significant relationship between technological capability and adaptability of hotels in Port Harcourt.

Ho₂: There is no significant relationship between technological capability and dynamic capability of hotels in Port Harcourt.

The correlation coefficient (r) shows that there is a significant relationship between technological capability and dynamic capability. The *rho* value 0.773 indicates this relationship and it is significant at $p = 0.000 < 0.05$. The correlation coefficient represents a strong correlation between the variable. Therefore, based on empirical findings the null hypothesis earlier stated is hereby rejected and the alternate upheld. Thus, there is a



significant relationship between technological capability and dynamic capability of hotels in Port Harcourt.

Ho₃: There is no significant relationship between technological capability and resource acquisition of hotels in Port Harcourt.

The correlation coefficient (r) shows that there is a significant relationship between technological capability and dynamic capability. The *rho* value 0.232 indicates this relationship and it is significant at $p\ 0.000 < 0.05$. The correlation coefficient represents a low correlation between the variable. Therefore, based on empirical findings the null hypothesis earlier stated is hereby rejected and the alternate upheld. Thus, there is a significant relationship between technological capability and resource acquisition of hotels in Port Harcourt.

DISCUSSION OF FINDINGS

The findings revealed a strong and positive significant relationship between technological capability and organizational performance of hotels in Port Harcourt using the Spearman's rank order correlation tool and at a 95% confidence interval. The findings of this study confirmed that technological capability has a significant positive relationship organizational survival in the sampled hotels in Port Harcourt. Therefore, this revealed that a strong and positive relationship exists between technological capability, adaptability, dynamic capability and resource acquisition. This finding however supports the views of Esterve-Perez and Manez-Castillejo (2008) and Orgega-Argiles and Moreno (2007) and Cockburn and Wager (2007). Empirically, there are only mixed results about the impact of innovative activity, such as R&D and patent, on firm's survival. Esteve-Perez and Manez-Castillejo (2008) and Orgega-Argiles and Moreno (2007), which use R&D as an index for technological capability showed that the positive relationship between R&D and company survival is particularly seen in the hi-tech industry. Moreover, Cockburn and Wagner (2007)

and Buddelmeyer *et. al* (2009) using patent as an indicator. The former literature deals with internet service providers, again high-tech, and finds positive relationship. The current study finding is in line with the views of Ivanov and Webster (2019b) that it is noteworthy to state that in the future, robots serving in tourism and hospitality may change the guests experience in terms of expectations, service quality, and image. Research has shown how technologies can mediate and, to some extent, enhance tourism experiences (Zhang, 2018), which is equally applicable to robotics. Judging from attitudes towards robots in China during the pandemic crisis, people's acceptance of high-tech services may be greater than some scholars have speculated. For example, robots dancing with patients in the Wuhan Fangcang field hospital have been widely viewed as a benefit. Tourists, on the other hand, are more likely to accept the technology if it is trustworthy, free of risk, competent, and easy to use (Kaushik, Agrawal & Rahman, 2015). The relationship of "tourists – guides – destinations" will increasingly include "tourists – robots – destinations" in a post-COVID-19 world.

CONCLUSION AND RECOMMENDATIONS

Based on this the following, recommendations are here proffered:

- i. Management of Hotels should seriously invest heavily in building their technological capability especially going into the post COVID-19 era where technology is expected to drive business processes bearing in mind the need for minimal human interface.
- ii. Management of Hotels should pursue aggressively the opportunities created by the COVID-19 pandemic to improve their technological capability since their survival will depend to a great extent on it. They should begin to embrace recent technological breakthrough using artificial intelligence that



would offer high-tech hotel services that are able to protect guests from public health crises, assure guests of their health and safety during their stay, and make them feel more at ease.

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