
Prospects, Limitations and Challenges in the Concept and Application of ICT on SMEs in Rivers State

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Abstract: *Small and Medium enterprises (SMEs) can play an important role in the national economy of developing countries. The adoption of information and communication technology has enabled local SMEs to participate in the international market. However, little research has addressed issues related to SMEs adopting ICTs, especially in Rivers State, Nigeria. This paper examined challenges, limitations and prospects of SMEs adoption of ICTs in doing businesses. The study found that relative advantages, top management support, culture, regulatory environment, owner/manager innovativeness and ICT knowledge had a significant relationship with ICT adoption among SMEs in Rivers State, Nigeria. The implications of this study will potentially help SME managers/owners and the Rivers State government in the successful adoption and diffusion of ICT in SMEs located in Rivers State, Nigeria.*

Keywords: *Challenges, Information Communication Technology, Limitations, Prospects, Small and Medium Enterprises*

INTRODUCTION

The role of Small and Medium Enterprises (SMEs) in shaping the World's economy is very fundamental and well documented (Ndiaye, Razak, Nagayev & Ng, 2018). For instance, amongst OECD countries, SMEs are the predominant form of enterprise, accounting for approximately 99% of all firms (ILO, 2012; OECD, 2017). They provide the main source of employment, accounting for about 70% of jobs on average, are major contributors to value creation, generating between 70% of jobs on average, are major contributors to value creation, generating between 50% and 60% of value added on average, and comprise 45% of total employment and 33% of GDP (IFC, 2010; Perkins, 2019). Micro-enterprises alone are reported to employ an estimated 80% of the working population of Sub-Saharan Africa (Biekpe, 2004; Stein, Ardic & Hommes, 2013; Abisuga-Oyekunle, Patra & Muchie, 2020).

The increasing penetration of the internet and associated ICTs in Africa has led several commentators to argue that these technologies are creating a new economy – an information economy – in which information is the critical resource and basis for competition in all sectors including SMEs (Pather & Abiodun, 2017). However, it has been observed that users in the SME sector have perceived the adoption of ICT with scepticism, with some scholars ascribing the phenomena to 'technophobia' (Gilbert, Lee-Kelley & Barton, 2003; Gray, 2006; Ion & Andreea, 2008; Labrianidis, Kalogeressis, Kourtessis & Skordili, 2017; Rahman, Singhry, Hanafiah & Abdul, 2017; Lew, Toh, Lim, Yan & Yow, 2019; Panas, Vasiliadou & Halkiopoulou, 2020). This is especially true amongst the smallest category of SME business, commonly known as micro-enterprises (Cataldo, Pino & McQueen, 2020). It has further been observed that such technophobia in relation to ICT use is influenced by users' pre-usage beliefs and attitudes (Chakraborty & Al Rashdi, 2018).

The implementation of information and communication technology (ICT) in small-to-medium-sized enterprises (SMEs) is vital for the socioeconomic development of an economy, especially in developing countries (Rahayu & Day, 2017; Yunis, El-Kassar & Tarhini, 2017). Leaders of SMEs incrementally use ICT-based electronic commerce to gain competitive advantage in the global marketplace (Rahayu & Day, 2017; Tob-Ogu, Kumar & Cullen, 2018; Zafar and Mustafa, 2017). Despite the growth of ICT-based electronic commerce within SMEs in developed countries, the rate of ICT adoption within SMEs in developing countries has remained relatively low (Napitupulu, Syafrullah, Rahim, Abdullah & Setiawan, 2018; Rahayu & Day, 2017). The low adoption rate of ICT by SME leaders in developing countries such as Nigeria has contributed to a low rate of economic development in these countries (Jones, Simmons, Packham, Beynon-Davies & Pickernell, 2014; Rahayu & Day, 2017; Tob-Ogu *et al.*, 2018; Zafar & Mustafa, 2017).

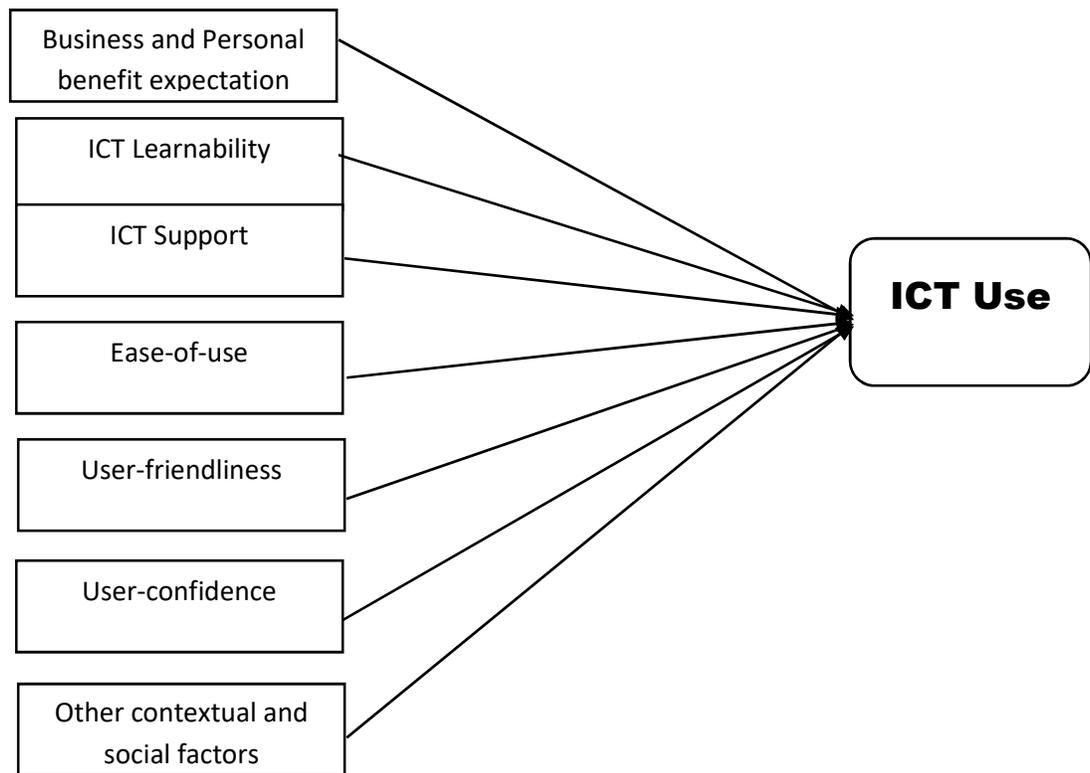
Policy statements by the United Nations, the African Union and most African countries boldly pronounce on the anticipated benefits of the internet networked world and associated ICT to society in general and to the world of business specifically (Kyakulumbye & Pather, 2021). Small and Medium Enterprises (SMEs) are recognized as being critical to the growth of developing economies. There is consensus that this sector has considerable potential for improved business outcomes through the harnessing of information and Communication Technologies (ICTs). However, a problem of low adoption of ICT in this sector still prevails in Nigeria and there is a gap in our understanding of the reasons for this. In light of the prevailing technophobia, this paper examines the underlying beliefs and attitudes among SMEs owners in Rivers, which to date comprise of low adopters.

LITERATURE REVIEW

Theoretical Model

Technology Acceptance Model

Davis (1985) posits that a potential user's overall attitude towards using a given system is assumed to be a major determinant of whether one will or will not use it. Attitude towards use is a cognitive issue for which Davis (*ibid.*) highlights two dimensions, viz., perceived usefulness and perceived ease-of-use. Moreover, a cognitive response results into affective response (attitude towards using) which later predicts actual use (Davis, 1985, 1993). However, inherent in ease-of-use and usefulness is the concept of perception which is behavioural and attitudinal in nature (Kyakulumbye, Muhenda & Anaclet, 2012; Verma & Sinha, 2018; Scherer, Siddiq & Tondeur, 2019). Over the years there have been several studies that render the original technology acceptance model variables insignificant. For instance, Sin Tan, Choy Chong, Lin and Cyril Eze (2009) found that relative advantage, compatibility, complexity, observability, and security are significant factors influencing internet-based ICT adoption. Other studies have correlated adoption and diffusion challenges among SMEs to ICT design issues (Aleke, Ojiako & Wainwright, 2011). Namankani (2019) has argued that to ensure successful diffusion of innovation, a balance must be maintained between the amount of effort expended in the design of ICT and social factors such as language and traditional life.



Researcher's Conceptualization, 2021

Concept of Small and Medium Enterprises (SMEs)

Small and Medium Enterprises (SMEs) are sources of economic growth and considered major economic players (Ramdani, Chevers & Williams, 2013). The widely accepted definition refers to “Small Sized Enterprises with between 1 to 49 employees, while Medium Sized Enterprises are firms with between 50 to 100 employees” (Berisha-Namani, 2009). The SME sector can make an important contribution in the transition to a market economy by creating employment, generating income, fostering technological advancement and promoting other aspects of social development (Ahmad, Abdul Rani & Mohd Kassim, 2010). SMEs can accelerate the pace of social and economic development, especially in developing countries like Nigeria. Furthermore, they can provide an environment in which to develop employees’ managerial and technical skills. In Nigeria, SMEs contribute 48% of national GDP, account for 96% of businesses and 84% of employment (PWC, 2021).

The performance and growth of small and medium enterprises (SMEs) is a major driver and indices for the level of industrialization, modernization, urbanization, gainful and meaningful employment for all those who are able and willing to work, income per capital, equitable distribution of income, and the welfare and quality of life enjoyed by the citizenry (Aremu & Adeyemi, 2011), because SMEs contribute to employment growth at a higher rate than larger firms (Farouk & Saleh, 2011). The SME sector is globally regarded as an important force of driving the economic growth and employment creation in both developing and developed countries (Ariyo, 2008; Kpleai, 2009), which is well documented (Birch, 1989; Storey, 1994). SMEs (firms with 200 or less employees) makes up the largest business sector in every world

economy (Culkin & Smith 2000), and governments around the globe are increasingly promoting and supporting the SME growth as part of their overall national development strategy (Abdullah & bin Dakar 2000).

Impact of Information Communication Technology on Small and Medium Enterprises (SMEs)

The term ICTs refers to the use of internet enabled applications via desktop or mobile computing devices to boost business performance (Francis & Willard, 2016). Information and communication technologies (ICTs), particularly the use of internet to conduct online business, have been changing the conventional way of doing business among brick and mortar companies (Beynon-Daviers, 2018). In the SME sector several proponents suggest there is need for early adoption if business sustainability is to be achieved (Beynon-Davies, 2018).

Effective ICT diffusion among SMEs should result in impacts that transcend tangible benefits and impacts (Consoli 2012; Jawed & Siddiqui 2019). Various studies which reveal the low levels of adoption among the SME sector, have endeavoured to make recommendations in respect of tangible components of ICT adoption. For instance, Arendt (2008) reveals that in Malaysia, despite efforts to improve technology accumulation through education and skills development, SMEs remain on the wrong side of the digital divide. Others have argued that further research is necessary in order to develop a real understanding of the ICT adoption processes in small firms (Martin & Matlay 2001; Hartono & Herman 2019).

A review of ICT adoption trends within both developed and developing economies can help to improve the understanding of the challenges of ICT adoption, particularly those faced by SME leaders in developing countries. The adoption and use of ICT represent an enabling mechanism by which organizational leaders improve the efficiency and effectiveness of their business processes, as well as transform existing business models (Jones *et al.*, 2014). Organizational leaders, including SMEs must adopt and use ICT to survive in the new business economy (Rahayu & Day, 2017).

The adoption and use of ICT have helped organizations achieve growth by becoming more efficient, effective, innovative and globally competitive (Jones *et al.*, 2014; Rahayu & Day, 2015, 2017; Tarute & Gatautis, 2014). The use of ICT enables SMEs to compete at the same level as their larger counterparts in the global market (Agwu & Murray, 2015).

Limitations of Information Communication Technology in Small and Medium Scale Enterprises (SMEs) in Rivers State

The problem of low adoption of ICT amongst this sector is well documented in the literature (e.g. Nguyen 2009; Mramba, Apiola, Kolog & Sutinen, 2016; Pather and Abiodun 2017). This problem is further compounded in practice wherein SMEs fail to make the connection between ICT adoption and their profit-motive on the one hand and their personal motive gain expectations on the other. However, there is a widely accepted consensus that if SMEs harness ICTs, it is likely to improve performance, growth and sustainability for more inclusive employment, increased mobility, ability to organize customer information and improved inter-connectedness to other microenterprises (Francis & Willard 2016). It is further observed that the low adoption and use of ICTs among SMEs in developing contexts is due to demographic antecedents and beliefs and attitudes of users in the sector (Pustovrh, Jaklic, Martin & Raskovic, 2017).

Leaders of SMEs are not fully taking advantage of the potential benefit of ICT compared to large companies, partly because of the limited resources, technology and capabilities of these SMEs (Rahayu & Day, 2015, 2017; Tarute & Gatautis, 2014). These limitations have been significant challenges in many organizations, particularly SMEs, as they are more prone to suffering the effect of these limiting factors because of size and resource limitations (Rahayu & Day, 2017). The shortage of ICT skills and lack of adequate finances experienced in SMEs compared to large organizations have more significant consequences for SMEs than for large firms, thus limiting the ability of SME leaders to create or sustain competitive advantage (Napitupulu *et al.*, 2018; Rahayu & Day, 2017; Tob-Ogu *et al.*, 2018; Zafar & Mustafa, 2017). The barriers to ICT adoption for SMEs include internal and external barriers. The internal barriers include the characteristics of the owner/manager, organizational characteristics, cost of adoption and implementation and return on investment (Tarute & Gatautis, 2014). External barriers include infrastructure, social, cultural, political, legal and regulatory barriers (Agwu & Murray, 2015; Tarute & Gatautis, 2014). Inhibiting factors of ICT adoption among SMEs when compared to large firms included organizational (such as lack of skilled personnel and coherent ICT strategy), financial (such as high investment cost), infrastructural (such as access to power, internet bandwidth and reliable internet connection) and technological (such as the learning curve of evolving technology) factors (Rahayu & Day, 2017).

Challenges of Information and Communication Technology in Small and Medium Enterprises (SMEs) in Rivers State

Despite the significant contribution of SMEs to the Nigerian economy, challenges still persist that hinder the growth and development of the sector. According to the Nigeria Bureau of Statistics, small and medium scale enterprises (SMEs) in Nigeria have contributed about 48% of the national GDP in the last five years. With a total number of about 17.4 million, they account for about 50% of industrial jobs and nearly 90% of the manufacturing sector in terms of number of enterprises.

Though significant growth has been achieved in the MSME sector, there is still much to be done. According to an article on “developing Africa through effective, socially responsible investing”, “there still exists a ‘missing middle’, which finds it hard to access funds due to the category of funding they belong to.” (PWC, 2021). Other challenges encountered by the sector include lack of skilled manpower, multiplicity of taxes, high cost of doing business, among others.

According to SMEDAN (2013), the six key constraints faced by the sector includes: access to finance, weak infrastructure, inconsistency of government policies, access to market, multiple taxation and obsolete technology.

Numerous factors impede the growth of SMEs in Nigeria. These factors include lack of adequate credit, significantly low technological enhancement, inadequate and inefficient infrastructural facilities, shortage of skills, low entrepreneurial skills, and employee turnover that affects performance, productivity, and growth (Gbandi & Amissah, 2014; Tobora, 2014). The national climate for innovation, which involves issues such as government policy, costs of doing business and quality of communication infrastructure is a key factor that impacts SME growth (Mazzarol, Clark & Rebound, 2014a). Other factors impeding SME development include limited access to appropriate technology, limited access to the global market, government policies, socioeconomic factors, available financial and nonfinancial assistance,

weak institutional capacity, weak financial strength, top management leadership skills, managerial characteristics and organizational culture (Jones *et al.*, 2014; Rahayu & Day, 2015, 2017; Tarute & Gatautis, 2014; Tobora, 2014).

Prospects of Information Communication Technology in Small and Medium Enterprises (SMEs) in Rivers State

Studies have advocated for increasing awareness among SMEs on the benefits of ICT adoption. For example, Almazroa and Gulliver (2018) argue the need for more ICT training facilities for SMEs, measures to provide ICT products and services at an affordable cost, and free professional advice and consulting. Some critiques have referred to such recommendations as ‘Blanket’ approaches to promoting ICT adoption amongst SMEs which regrettably have not made significant differences to the sector (Eze, Olatunji, Chinedu-Eze, Bello, Ayeni & Peter, 2019; Cataldo *et al.*, 2020). Others such as Gomez and Pather (2012) recommend a fundamental paradigm shift in understanding how ICT might have development impacts, by focusing on intangible aspects in relation to usage outcomes, instead of only tangible ones.

According to Iwanger (2021) the board of directors of the African Development Bank (AFDB) have approved a loan of \$50 million to Nigeria’s City Monument Bank (FCMB) to channel to local enterprises and women-empowered businesses in the agribusiness, manufacturing, healthcare and renewable energy sectors. This fund was intended to mitigate the effects of the challenging Covid-19 environment, are earmarked for underserved women-empowered businesses.

Large and small organizations in developed and developing economies can rapidly become formidable competitors while using ICT to create competitive advantage and become market leaders (Mustafa, 2015; Rahayu & Day, 2017). Organizations can use ICT as the means to facilitate strategic planning, future research, and business forecasting for both process efficiency and effectiveness (Agwu & Murray, 2015; Keller & Von der Gracht, 2014). Adopting ICT impacts the flexibility of an organization, where companies whose leaders adopt ICT are more likely to perform better in the market and exhibit product or service differentiation (Tarute & Gatautis, 2014).

ICT increase the efficiency of an organization and enables effective decision making to explore business opportunities and maximize benefits (Rahayu & Day, 2017). The adoption and use of ICT represents a fundamental avenue for organizations to compete and grow when properly exploited (Rahayu & Day, 2017; Tob-Ogu *et al.*, 2018; Yunis *et al.*, 2017; Zafar & Mustafa, 2017). Adopting new technologies rapidly in SMEs can help to create innovative products and compete globally (Rahayu & Day, 2017; Tob-Ogu *et al.*, 2018; Yunis *et al.*, 2017; Zafar & Mustafa, 2017).

CONCLUSION

In this paper, several factors emerged that have contributed to the success of SMEs in Rivers State, Nigeria, including the adoption and use of ICT, innovative products and services brand, good customer relationships, access to financial resources, setting clear strategic business goals and having the right employees. Organizational leaders who have adopted and used ICT have helped businesses become efficient, effective, innovative and globally competitive.

PRACTICAL IMPLICATIONS

Based on the literatures reviewed, SMEs are an integral part of innovation and growth in a dynamic economy; thus SMEs play a critical role in job creation, poverty alleviation and socioeconomic development in both developed and developing countries. The research therefore recommends the following:

- i. Stable financial development, effective and secure financial systems and targeted lending.
- ii. Good institutions at all levels of government supporting and promoting SMEs. This will ensure corruption and regulatory burdens are minimized and rule of law, land and property rights, creditors' rights etc. are overcome accordingly.
- iii. Good infrastructure and facilities that encourage SMEs to pool their information and resources.
- iv. High level of entrepreneurship and sufficient human capital development.
- v. Promotion of and access to innovation and technology and adequate openness to foreign technology
- vi. Good policies that encourage stable exchange rates, low inflation, minimize entry regulations and promote attainment of higher levels of productivity.
- vii. Most of SMEs do not have patent right and their intellectual property are not protected.
- viii. The Ministry of Industry, Trade and Investment, SMEDAN and NOTAP should assist the SMEs in this regard by setting up an intellectual property facilitation cell, which will provide a range of intellectual property related services, such as prior art search, patent landscape and interface for technology transfer.

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