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# APPLICATION OF INFORMATION AND COMMUNICATION TECHNOLOGY FOR INTERNATIONALIZATION OF NIGERIAN SMALL AND MEDIUM-SIZED ENTERPRISES

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## ABSTRACT

Information and Communication Technology (ICT) has fundamentally transformed business transactions. While its uses have become ubiquitous in the advanced economies, emerging and developing economies are still struggling with the mode and manner of the deployment of ICT for business. Thus, this study seeks to investigate how small and medium-size enterprises (SMEs) utilize ICT in Nigeria for business internationalization. To achieve the goal of the study, a mixed-method was employed. A questionnaire was administered to 265 people consisting of SMEs staff, managers, and owners. Similarly, interviews were conducted with seven SME decision makers. Findings revealed that Nigerian SMEs used ICT tools, such as websites and social media platforms, for internationalization. The findings also revealed that the challenges of ICT did not affect its application by these SMEs which contrasts with many previous studies. Furthermore, this study identified privacy concerns, internet problems, cyber insecurity, trust, and system anxiety as new challenges facing the application of ICT tools by SMEs. Similarly, the findings showed that lack of ICT competence and strategic focus for ICT applications are internal problems facing Nigerian SMEs. These findings provide insight for practitioners and academia on the internationalization of Nigeria SMEs and the application of ICT to promote business growth.

**Keywords:** ICT, Internationalization, Small and Medium Enterprises, Nigeria

## 1 | INTRODUCTION

Information and Communication Technology (ICT) enables business enterprises to grow and develop rapidly. The companies that use ICT have reported a positive performance and other benefits by utilizing ICT in their businesses more than those that are not employing ICT (Qiang et al., 2006; Ashrafi & Murtaza, 2008). Similarly, ICT plays a significant role in the internationalization of small and medium-sized enterprises (SMEs). ICT assists the companies in identifying opportunities and implementing business internationalization strategies. Likewise, ICT provides support for sourcing information and enabling communication for the internationalization process of SMEs (Aspelund & Moen, 2004). Additionally, ICT assists companies in competition analysis, market intelligence, distribution, and marketing activities (Loane, 2006). The focus of this paper is on ICT tools such as websites and social media platforms and the internationalization of Nigerian SMEs. Internationalization is a process of conducting business activities in another country (Lin, 2010; European Commission, 2010; Beneki et al., 2011). Similarly, Nigerian SMEs are business enterprises, which have a maximum of 500 employees and their annual turnover is not more than 500 million Naira (Nigeria Currency) (Etuk et al., 2014).

Due to the importance of ICT, many studies examine the roles of ICT on internationalization (Consoli, 2012; Ameyaw & Modzi, 2016; Hagsten & Kotnik, 2017; Talebi et al., 2017). For example, Aspelund & Moen (2004) studied the role of ICT on Norwegian SMEs' internationalization; likewise, Loane (2006) investigated the role of internet on the internationalization of SMEs from Canada, Ireland, Australia, and New Zealand. Meanwhile, there are limited studies on the same topic focusing on developing countries, specifically, Nigeria. Although there are some studies about the way Nigerian SMEs adopted ICT and utilized it, such as Uweigbe & Olatunji (2009), Apulu & Ige (2011), and Otesile (2013), there are few empirical studies on how Nigerian SMEs use ICT to internationalize. Consequently, this study aims to fill the gap by investigating the use of ICT among Nigerian SMEs for internationalization activities. The primary goal of the study is to present the role of ICT on Nigerian SMEs' internationalization. To achieve this goal, the study seeks to answer the following research questions:

- (a) How do Nigerian SMEs use ICT for internationalization?
- (b) Does the use of ICT contribute to the internationalization of Nigerian SMEs?

In answering the research questions, a mixed-method approach was employed. The approach consisted of quantitative and qualitative research methods. A questionnaire was used for the quantitative method, while interviews were used for the qualitative method. Study participants for both methods were selected based on predetermined criteria. Quantitative data were analyzed with a statistical method (Partial Least Square with Structural Equation Modelling) and qualitative data were analyzed with data management software known as Nvivo 11. Findings showed that Nigerian SMEs used ICT for their business internationalization though they encountered some challenges. Aspects of these challenges such as privacy concerns, internet-related problems, cyber insecurity, and system anxiety were not previously discussed in a Nigerian context. Furthermore, the findings revealed that lack of ICT skill and strategic focus for ICT were SMEs' internal problems, not external challenges as previously thought. The rest of this paper is structured as follows:

theoretical background, study methodology, result, discussion, and conclusion.

## **2 | LITERATURE OVERVIEW**

According to Laudon & Laudon (2010), the term ICT is any form of technology which includes activities encompassing information creation, storage, manipulation, and communication, as well as their related systems, management, procedures, and applications. ICT comprises a wide range of hardware, software, and communication infrastructure such as computers, mobile and wireless communication devices, satellite communication gadgets, videoconferencing equipment, networks, internet, websites (Web 2.0), email, and social media platforms.

Different facets of ICT play critical roles in how governments at all levels deliver social services to the people (Jayaram et al., 2015). Furthermore, firms also utilize the provision of ICT to optimize both business processes and customer service (Hashim, 2015). Interestingly, the understanding of the different ways of how ICT can be used is of critical importance for the internationalization of SMEs. Accordingly, the following subsections provide the theoretical explication of the facets of ICT and their benefits to the internationalization of SMEs.

### **2.1 | Use of ICT**

The importance of ICT in the developed markets is underscored by the fact that firms and even economies depend on it for survival (Kim & Park, 2015) compared to developing countries. Hence, the developmental gap between the developed and developing economies is majorly attributed to the strategic approach the former employed which has seen the permeation and proliferation of ICT in all its sectors (Avgerou, 2010). Consequently, the measurement of the growth of a nation has largely been attributed to the deployment and use of ICT. Thus, it is regarded as a fundamental basis for the prosperity of modern society (Saarenketo et al., 2008). There are different conceptualizations of ICT. Balamoune-Lutz (2003) argues that ICT is represented by internet hosts, internet users, personal computers, and mobile devices (phones and tablets). Fundamental corridors precipitating the diffusion of these technologies in the developed economies have been attributed to government strategic framework and policies, education, and infrastructure (Heeks, 2010). Conversely, the inability of developing nations to jumpstart their economies using ICT as a platform is because of inconsistent policy, corruption, and deficient infrastructure (Kozma & Vota, 2014). Therefore, such economies suffer perilous and debilitating poverty occasioned by the lack of platform to aggregate and harness individual initiatives (Bennett & Robson, 1999). In relation to the goal of this paper, the common ICT tools considered in the study are briefly described in the following paragraphs.

#### ***(a) Websites***

The emergence of Web 2.0 has opened vast and limitless opportunities for SMEs in the developed economies (Schroth & Janner, 2007). Web 2.0 is defined as an advanced internet technology that creates space for socialization and collaboration. It is an innovative tool for business development by providing a link between national and international enterprises. Hence, it is a platform for collaboration, networking, and co-creation by buyers, suppliers, and producers. It has features like comments, Short Message Service (SMS), votes, and company blogs, where firms can ask customers what they like, dislike, or wish about their

products or services. With these features, globally-known electronic commerce (e-commerce) firms such as Amazon, eBay, Alibaba, and others can reach their customers across the globe and dominate the retail business (Bell & Loane, 2010).

Additionally, e-commerce companies use Web 2.0 in two ways. The first way is crowdsourcing for suppliers: a phenomenon that opens their businesses to suppliers from different countries, experiences, and diverse business lines. Although these suppliers sell to customers by themselves, they are harnessed, monitored, and controlled by the e-commerce firm. This enables e-commerce companies them to compete favorably as they strategically harness the input of these suppliers for satisfaction of their diverse customer needs and preferences. The ability of suppliers to retain their rights on the platform is based on the ratings and reviews of customers about them. The second way is user-generated content, which has opened up a dynamic frontier for buyer-seller relationships. Because consumers have moved from passive recipients of marketing information to active contributors, their comments and reviews are contributing to product and service innovation. Thus, new product development processes have benefited immensely from consumer reviews and comments, even across geographical boundaries (Bell & Loane, 2010). Summarily, websites offer companies these benefits:

*The reduced importance of economies of scale, lower marketing communication costs, greater opportunities for price standardization, reduced information float time, temporal asynchronicity, increased contact between buyers and sellers, and changes in intermediary relationships.”* (Bell & Loane, 2010, p. 216).

Furthermore, websites increase the visibility and influence of SMEs by changing the way customers interact with the business content and employees. Similarly, it offers new prospects for presenting products and services to the customers, thereby creating communities around a brand or product (Bitler, 2001; Johnson, 2004; Bell & Loane, 2010).

### ***(b) Media platforms***

Through ICT-enabled business ecosystems, developed economies have witnessed techno-innovative improvements in the production and internationalization of music (e.g. Spotify), movie series (e.g. Netflix and HBO), payment for goods and services (e.g. PayPal), and education (e.g. Open university system). Moreover, in the developed economies, service-oriented businesses such as airlines, supermarket chains, coach and bus companies, hotels and destinations, and shipping and logistics firms have transformed their businesses by way of reducing customer contacts with service personnel. Thus, customers can book and make payments online. Such practices have been adjudged to not only contribute to operational efficiency (Hempell et al., 2004), but they have also improved firm profitability (Hyytinen & Pajarinen, 2005).

## **2.2 | Roles of ICT on SMEs**

SMEs contribute immensely to the growth of an economy and serve as tools that can be used to bridge the gap between extreme poverty and wealth (Memili et al., 2015). This is because SMEs provide platforms to create jobs, improve the standard of living, and promote entrepreneurship and entrepreneurial skills. SMEs have played a key role in the economies of both developed and developing countries in terms of turnover and level of employment. The use of ICT promises fundamental changes to SMEs. Research has shown that some firms

have been able to utilize ICT to achieve strategic advantage (Akomea-Bonsu & Sampong, 2012). ICT also influences flexibility of the organizations and companies that adopt it to perform better in the market (Tarutėa & Gatautisa, 2014). The adoption of ICT can provide SMEs with valuable information, increased knowledge, improved performance and relationships with customers and suppliers, increased efficiency, reduced cost of production, among other benefits (Bell &Loane, 2010).

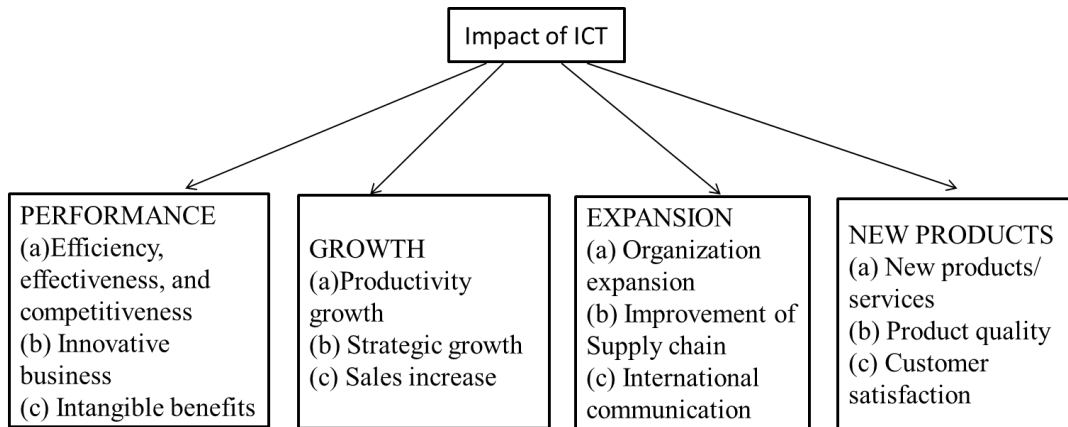
Consequently, many studies, such as Gordon (2000), Baily &Lawrence (2001), and Oliner & Sichel (2001), have analyzed the contribution of ICT to the United States' macroeconomic performance, while Jorgenson (2001) summarized the results of these analyses and emphasized that ICT made a sizable contribution to the high productivity growth of the United States' economy. In the same vein, Japanese companies that invested in ICT were found to be more profitable than those that did not (Morikawa, 2004). Additionally, Ollo-Lopez &Aramendia-Muneta (2012) stated that ICT adoption seems to have a positive effect on productivity, either directly or indirectly. They also stated that ICT adoption has great potential to support sustainable development. Liang et al (2010) and Bayo-Moriones et al. (2013) added that studies have shown that ICT performance effects vary according to the type of technology being used and its degree of adoption. In support of this notion, Bitler (2001) mentioned that while many studies provide evidence of the positive effects of ICT adoption on firm performance, others have shown no relation between computer use and firm performance.

In addition, Manochehri et al. (2012) pinpointed that ICT platforms (for example: personal computers, mobile phones, internet, etc.) have four main contributions to organizations: (a) provide more visibility to business enterprises, (b) provide more information to small firms, (c) allow enterprises to overcome traditional trade barriers, and (d) facilitate financial transactions. They further asserted that the use of email, e-commerce, and social media networks have significantly cut down on the physical transportation involved in sending mail, banking, advertising, and buying goods. They added that it is also known that ICT makes services more easily tradable and increases productivity in manufacturing enterprises.

Furthermore, a report by the Organization for Economic Co-operation and Development (OECD, 2002) indicates that the overall impact of ICT and electronic business (e-business) strategies on firm performance are positive, but that ICT is not a panacea. Further work by researchers in 13 OECD countries based on large-scale statistical surveys provides evidence that the use of ICT can improve firm performance in terms of increased market share, expanded product range, customized products, and better responses to client demands. Moreover, ICT may reduce inefficiency in the use of capital and labor. For example, ICT reduces inventories and increases the number of customers or other firms connected to the network. Meanwhile, the OECD (2004) analysis shows that complementary investments in skills, organizational change, and innovation are keys to making ICT work and that the use of ICT affects firm performance primarily when accompanied by other changes and investments. It also states that without these, the economic impact of ICT may be limited.

Pavic et al. (2007) argue that SMEs can achieve a competitive advantage from advances in ICT through innovation, marketing, efficiency gains, higher quality, and customer responsiveness. However, their study of UK SMEs' e-business adoption and use

points to an inability to make effective strategic use of the technology due to owner's attitudes and lack of relevant knowledge and skills. Consoli (2012) analyzed scientific literature of ICT's impact on companies and identified and categorized the main effects into four groups as shown in Figure 1 which is adapted from Consoli (2012).



**FIGURE 1 Impact of ICT on Private Companies**

According to Consoli (2012), Figure 1 presents the four groups of the main effects of ICT: performance, growth, expansion, and new products. Each of the groups consist of several dimensions. This explanation is supported by Manochehri et al. (2012) and Sabbagh et al. (2012) who opined that investments in ICT have considerable effect on the productivity of the labor force and on economic growth.

Considering developing nations, ICT also plays an important role in integrating different market types, structures, and the creation of new economies. Many developing and under-developed economies rely on SMEs for growth. ICT also plays a dominant role in sharing information and improving customer service experience which is an important tool needed for the growth of SMEs. In early 2000, developing nations, especially in Africa, experienced a surge in the use of ICT in transaction processes. The improved use of ICT reduced the communication gap between the producers and consumers of services (Matambalya & Wolfe, 2001). Similarly, ICT has been used in other areas of the economy such as education (Oyelere et al., 2016; Otunla et al., 2016), health (Olawumi et al., 2017), tourism (Ukpabi & Karjaluoto, 2017), security (Oyelere et al., 2018), and commerce (Olaleye, 2016; Olaleye, et al., 2017).

Furthermore, Bazhenova et al. (2012) stated that ICT enabled business management processes (BMP) to experience exponential growth from \$1.8 billion in 2008 to \$6.2 billion in 2015 on a global scale. Presently, the incorporation of ICT into SMEs is slowly gaining momentum in the developing economies due to positive government policies (Thapa & Sæbø, 2014). Additionally, the ubiquity of mobile devices and other ICT tools are positively influencing the way SMEs do their business, especially through the varied use of websites (Bell & Loane, 2010). For instance, Loane & Bell (2002) emphasized the centrality of a website as a tool for market positioning, prediction, promotion, and online sales; whiles Torey (2004) outlined the importance of keeping customer databases and information sharing. Likewise, Piscitello & Sgobbi (2004) and Beneki et al. (2011) stated that with the

help of powerful ICT applications like Knowledge Management Systems (KMS), electronic Customer Relationship Management (e-CRM), and Enterprise Resource Planning (ERP), SMEs are growing. Similarly, Shaibu et al. (2016) considered the use of computers and information communication devices as critical for success in contemporary society.

However, the huge investment involved in adopting ERP applications such as SAP (Systems, Applications, and Products) is still a challenge for SMEs, but there are lots of cost-effective ICT applications that are designed especially for SMEs. Examples are social media technologies (e.g. Facebook, Instagram, Twitter). Some ICT applications are free while others are offered at an affordable price. Despite the advantages of using ICT as a supplemental business tool, it is still questionable whether ICT is sufficient alone to turn things around for the SMEs (Storey, 2004; Sinkovics & Bell, 2005).

From the above, it can be noted that ICT contributes significantly to the growth and development of businesses. The above literature focused on the advanced economies and samples came from large corporations. Similarly, a body of literature establishes the correlation between ICT tools and the robustness of the SMEs in the developed economies (e.g. Esselaar et al., 2006; Heeks, 2010).

### **2.3 | Application of ICT in SMEs' Internationalization**

Extant studies on large firm internationalization have been progressive, but there is a lacuna on how SMEs internationalize with the aid of ICT in the context of developing nations. Bell &Loane (2010) confirmed the growth of SMEs in the past 20 years and explained its attractiveness to the researchers and the policy makers, most especially the take-up of SMEs in foreign business. Despite this impressive development, these scholars specifically recommended further examination of "Web 2.0-enabled SMEs".

It is always a concern that SMEs are not prompt in adopting technology like the large firms. The same situation happens in the adoption of ICT which is affected by SMEs' hesitation to change their business model due to the uncertainty of its impact on their business. Similarly, the nonchalant attitude of most governments in developing nations to implement ICT policy is another distraction (Storey, 2004). Contrary to the slow adoption of ICT by SMEs, Bell &Loane (2010) argue that the proliferation of ICT is growing along with its adoption and use by the SMEs. In addition, Beneki et al (2011) discovered that there is a necessity for SMEs to combine internet technologies, business software, and ICT strategy for their internationalization.

Beneki et al (2011, p. 41-42) described internationalization as a "*means that a firm acts in one or several foreign markets and thus develops its activities in an international context*". These authors explained further that internationalization helps SMEs to have a competitive and comparative advantage in a foreign business domain. They added that, in the past, there was a concentration on the internationalization of large organizations, but SMEs' internationalization strategy started picking up when ICT enabled them to get easy access to foreign markets. To illustrate this change, Storey (2004) presented that, more than a decade ago, application of ICT by SMEs was predominant in OECD countries. He quantified the statistics showing that 9 out of 10 SMEs had computers with internet access. The author noted that, with this datum, there was evidence of astronomic margins between ICT adoption in developed and developing countries.



Furthermore, Johnson (2004), Sinkovics & Bell (2005), and Todd & Javalgi (2007) revealed that the global visibility of SMEs is an ongoing process and the growing internet penetration in developing countries is creating an opportunity to bridge the digital divide and create a domain of operation for SMEs in the global market. Beneki et al. (2011) added that SMEs' visibility and their product promotion are effective using ICT tools in a foreign market. Sinkovics & Bell (2005) and Todd & Javalgi (2007) expressed that SMEs are leveraging ICT to overcome accessibility barriers to the global market, insufficient human and financial resources, and a lack of insight into the global market.

In addition, Kyläheiko et al. (2011) noted that achieving business expansion and growth of SMEs through internationalization is gaining ground steadily. These authors linked growth to technological knowledge, capability, and appropriateness. They recommended that the combination of internationalization and innovation be used to disrupt the domestic markets limitation for the SMEs. Bell & Loane (2010) contributed that the proliferation of internet and ICT has reduced hindrances of crossing the borders. This is elaborated by Todd & Javalgi (2007), who state that, despite the country-specific challenges, limited resources, risk of internationalization, cultural bias, language barrier, fierce competition, and much more that contends with SMEs to cross borders, the advancement of ICT software and applications tend to minimize the problems and pave the way for their internationalization. These authors gave an example by which the SMEs employed ICT tools to conduct marketing analyses such as political, economic, social, technological, and economic (PESTEL) impacts, and strengths, weaknesses, opportunities, and threats (SWOT) analyses in preparation for cross-country expansion.

Herath & Karunaratne (2015) explained that a website that is intended for e-commerce can be made up of different languages to reach customers in their native language and thus simplify and enhance their shopping experience. Hence, the authors emphasized that ICT has made exporting easier. Bell & Loane (2010) supported the notion by asserting that ICT is a catalyst of internationalization to SMEs and a viable tool of collaboration, networking, and co-creation with customers, while Vasilchenko & Morrish (2011) consider social networks as a handy tool of internationalization for SMEs.

Practically, Esselaar et al. (2006) noted that scholarly evidence has shown the adoption of ICT by SMEs in developed economies as a strategic policy for the internationalization of their operations. This is empirically affirmed by Piscitello & Sgobbi (2004) when conducting a study on the use of ICT for the internationalization of textile SMEs in the Italian district of Prato. The study, involving 12 textile SMEs, comprised eight fabric manufacturers, two spinning mills, and two knitwear manufacturers and found that a website was a potent tool through which the firms achieved internationalization: foreign buyers read the product catalogues online and subsequently placed an order.

So far, this section has enunciated ICT, its role in the SMEs, and its contribution to SMEs' internationalization. It can be noted that, despite limited resources of SMEs in developing countries, these companies' awakening to internationalization through ICT is exemplary and their aggressiveness to cross borders is becoming less cumbersome due to an opportunity to explore ICT tools. Meanwhile, there are problems associated with the exploration of ICT tools in the developing world. Examples of the problems are cost (Storey, 2004; Sinkovics & Bell, 2005), owner's attitude, and lack of skills (Pavic et al., 2007). It seems important to know how these challenges would influence the internationalization of

Nigerian SMEs. A study conducted in South Africa by Pillay (2016) identified lack of existing hardware, need for immediate return on investment (ROI), and lack of infrastructure as challenges SMEs faced in the country. Nigeria shares the same social, economic, political and technological characteristics with South Africa. Thus, this study assumed that perception of Nigerian SMEs on these problems would affect their attitude towards use of ICT tools for internationalization. Therefore, the first hypothesis of this paper is:

***H<sub>1</sub>: The perception of ICT problems of Nigerian SMEs negatively predicts their use of ICT.***

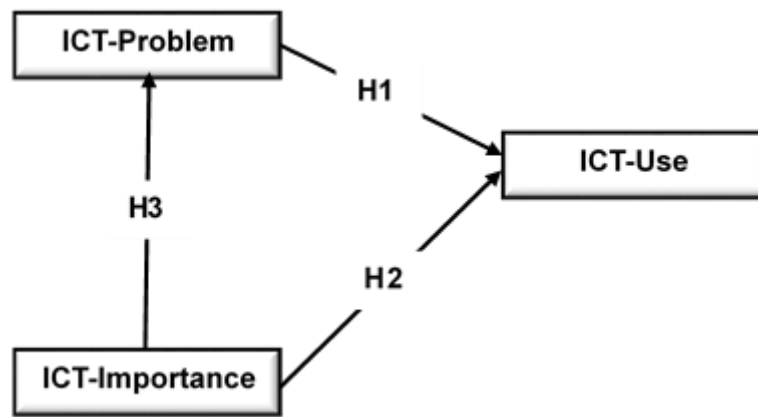
Previous works, such as Aspelund & Moen (2004), Piscitello & Sgobbi (2004), Esselaar et al (2006), Loane (2006), Bell & Loane (2010), Vasilchenko & Morrish (2011), Beneki et al (2011), Consoli (2012) and Herath & Karunaratne (2015), stated that ICT tools enabled SMEs to grow and expand internationally. Similarly, Sinkovics & Bell (2005), Loane (2006), Todd & Javalgi (2007), and Manochehri et al. (2012) mentioned that ICT tools could be used to overcome internationalization barriers. Additionally, Hempell et al. (2004), Hyytinen & Pajarinen (2005), Bell & Loane (2010), Ollo-Lopez & Aramendia-Muneta (2012), Akomea-Bonsu & Sampong (2012), Sabbagh et al. (2012), Tarut ea & Gatautisa (2014) and Hashim (2015) argued that ICT tools were used to boost business efficiency and profitability. Furthermore, Matambalya & Wolfe (2001), Ollo-Lopez & Aramendia-Muneta (2012), and Sabbagh et al. (2012) claimed that ICT tools were important for productivity, and Bitler (2001), Jorgenson (2001), Qiang et al. (2006), Pavic et al. (2007), Ashrafi & Murtaza (2008), Liang et al. (2010) and Bayo-Moriones et al. (2013) argued that ICT tools contributed to the firm's performance. These are the importance of ICT tools to SMEs. Thus, this study assumed that the perception of importance of ICT tools would override perception of problems associated with the application of the tools. The second hypothesis is:

***H<sub>2</sub>: The perception of ICT importance of Nigerian SMES will negatively predict the ICT problem.***

Similar to **H<sub>2</sub>**, Bell & Loane (2010) and Manochehri et al. (2012) argued that ICT tools were used to acquire information, while, Matambalya & Wolfe (2001), Ollo-Lopez & Aramendia-Muneta (2012), and Sabbagh et al. (2012) argue that ICT tools improve productivity. Loane & Bell (2002), Johnson (2004), Bell & Loane (2010), and Beneki et al. (2011) claimed that ICT tools were used to promote and increase visibility. Thus, this study assumed that the perception of Nigerian SMEs on the importance of ICT tools would determine the use of the tools. Thus, this study posits that:

***H<sub>3</sub>: The perception of ICT importance in the context of Nigeria will positively predict the use of ICT.***

The above hypotheses are presented in the following Figure 2, which serves as the conceptual framework of this study. The framework shows that there is a relationship between ICT problems, ICT use, as well as ICT importance and its use. Thus, perception of both ICT problems and the importance of ICT will affect the use of ICT. On the other hand, the study assumes that the importance of ICTs will positively affect the use of ICT.



**FIGURE 2 Conceptual Framework and Hypotheses**

### **3 | METHODOLOGY**

As stated earlier, a mixed-method research approach was used in this study. Mixed-method is an application of two or more research methods, especially qualitative and quantitative research designs, to collect, analyze, and interpret data (Creswell, 2015; Jogulu & Pansiri, 2011; Terrell, 2012). The approach is a sequential explanatory research strategy which can start from quantitative to qualitative research processes (Terrell, 2012). The primary benefit of the approach is that it strengthens mutual understanding of social phenomena (Creswell, 2015; Jogulu & Pansiri, 2011) and the understanding of people’s perception on the phenomena (Fellow & Liu, 2003; Crowther & Lancaster, 2009). Thus, to gain a better understanding of the study hypotheses, and to understand the perception of Nigerian SMEs on the roles of ICT for internationalization, this approach was used.

The quantitative method was employed purposely to test the study hypotheses, while the qualitative method was applied to complement the quantitative information. A questionnaire was used for the quantitative method and an interview was used for the qualitative. The questionnaire was administered by one of the authors who currently resides in Nigeria (the context of this study). The interviews were conducted and recorded by the authors of this paper. There were face-to-face, telephone, and Skype interviews. Details of the methods are described in the following subsections.

#### **3.1 | Selection of Participants**

The key criterion used for the selection of participants is that they must be working with an SME in Nigeria. Based on this criterion, sub-criteria were defined: the participant can be an owner, manager, or junior staff of an SME; the SME must be registered and operating in Nigeria; the SME must generate sales (i.e. must be operationally active), and the SME must have at least 2 employees. To ensure that the criteria were met, each participant was asked preliminary questions concerning the criteria before being given the questionnaire or selected for the interview. With these criteria, 265 participants responded to the questionnaire while seven participants were selected for the interviews. The interviewees are denoted by “P1-7” in Table 2. The details of the participants are shown in the following tables.

**TABLE 1 Questionnaire Respondents’ Information**

<b>SMES CHARACTERISTICS</b>	<b>PARTICIPANT CLASS</b>	<b>NO OF SMES</b>
Company position	Junior staff	75
	Managerial staff	74
	Owner	54
Industrial sector of the SME	Owner/manager	62
	Manufacturing	50
	Construction	54
	Estate Management	49
	Marketing	55
	Financial Services	25
	Information Technology	32
Years of operation of the SME	Less than 1 year	33
	1 – 3 years	89
	4 – 6 years	51
	7 – 10 years	40
	Above 10 years	52
Annual Sales of the SME	Less than ₦500,000	45
	₦501,000 - ₦999,000	63
	₦1,000,000 - ₦1,499,000	64
	₦1,500,000 - ₦1,999,000	27
	More than ₦2,000,000	66
Number of Employees in the SME	Less than 10	124
	11 – 50	108
	51 – 100	28
	101 – 500	5

**TABLE 2 Interviewees' Information**

	<b>SME industrial sector</b>	<b>Brief background of the SME</b>
P1	Printing and publishing company	Provides printed works such as books and magazines, etc. The firm comprises 20 employees and many part-time-employees to support production and distribution when the need arises
P2	Multiple business owner	Involved in different business, but the leading ones are services being rendered in sales and marketing to individuals, corporate bodies, or government. The company has 10 employees and over 30 call-employees when the need arises.
P3	Information technology (IT) business	Offers IT related services like web design, e-commerce, training, content management, and designs for hospitals, schools, and supermarkets. Also offers security services in the deployment of IT like CCTV camera and other surveillance security services.
P4	Cinematography	Provides video/photographic coverage on events such as weddings, child-naming ceremonies, etc.
P5	Computer tools and hardware	Sells computer tools and hardware to private individual and corporations.
P6	Solar systems producer	Provides solar systems and inverters services for both private and corporate clients.
P7	Food packaging	Provides food packaging and distribution

### 3.2 | Data collection

The questionnaire consisted of closed questions which contained background and hypothetical questions. The background questions asked for detailed information of the respondents while the hypothetical questions aimed to test the hypotheses of the study. A couple of hypothetical questions were adopted from previous and similar studies, like Lekhanya (2014).

Furthermore, a semi-structured interview was used to gather qualitative information for this study. The interview questions consisted of background and research questions. Most of the hypothetical questions of the questionnaire were included in the interview questions. While the questionnaires were targeted towards different groups of SMEs, the interviews were targeted towards decision makers of SMEs. In addition, interviews were conducted face-to-face, on the telephone, and Skype. These modes of interview were in line with the works of Wilson (2010) and Bryman & Bell (2011).

### 3.3 | Data analysis

The quantitative data were analyzed with statistical analysis methods and the qualitative data were analyzed with Nvivo 11. For the statistical analysis, Fellow & Liu (2008) stated that this analysis reveals core information about the data. Hence, these scholars state that to get latent information, observed variables (derived from the hypothesis) need to be constructed with their measurement items. Following these scholars, the constructs and measurement items of this study are presented in Table 3. The constructs are denoted by ICT Problem (ICTP), ICT Importance (ICTI), and ICT Use (ICTU). With the constructs, Confirmatory Factor Analysis (CFA) was carried out to conduct a partial least square structural equation modeling for the study. The CFA was done to examine how well the factors loaded with the constructs. Afterwards, SPSS 21.0 (IBM, 2012) was used to conduct reliability analysis for Cronbach's alpha ( $\alpha$ ) and SmartPLS 2.0 for partial least structural equation modeling. Similarly, data analysis was conducted with this study model to ascertain the convergent and discriminant validity of the study, and, finally, the partial least square was run to bootstrap and test above-listed hypotheses.

**TABLE 3 Constructs and Measurement items**

Constructs	Measurement items
<i>Perception of ICT Problem</i>	
ICTP01	I cannot operate the computer system
ICTP02	I cannot afford a computer system for my business
ICTP03	I can operate the computer system, but I cannot surf the web
ICTP04	The cost of accessing the internet is expensive
ICTP05	The cost of hosting a website for my business is expensive
ICTP06	Lack of stable power hampers my ability to regularly depend on the internet
ICTP07	I want to internationalize but I don't know how to do it
<i>Perception of ICT Importance</i>	
ICTI01	ICT tools are important for SMEs to access international markets
ICTI02	ICT is an important promotional tool for SMEs to get into the international market
ICTI03	ICT tools are important for SMEs business
ICTI04	Internet connectivity is useful for SMEs to get access in the international market
ICTI05	A website is useful for SMEs to gain insight of the international market
ICTI06	ICT tools are beneficial in different business operations of SMEs for internationalization
ICTI07	ICT tools are important for my SME growth
<i>Perception of ICT use in internationalization</i>	



information technology services, and only 9.4% offers financial services. Most of the companies were established 1 to 3 years ago (33.6%), 19.6% more than 10 years ago, 19.2% have been operating for 4 to 6 years, 15.1% 7 to 10 years, and 12.5% less than one year.

**(B) Measurement Model**

The study carried out a reliability test using Cronbach’s alpha and composite reliability to examine the internal consistency within a construct. According to Tavakol & Dennick (2011), Cronbach’s alpha is a reliability test that shows the relationship of the items with their corresponding latent variable. The Cronbach’s alpha ( $\alpha$ ) of this study was above the verge of 0.7. Further, the composite reliability for the study exceeds 0.7; it was between 0.88 and 0.93 for the three latent variables. Similarly, the average variance extracted was positive and met the set standard of 0.5 with the lowest output of 0.64 and highest output of 0.66, consistent with the work of Bagozzi & Yi (1988). The factor loadings met the set criteria of 0.5 and the output was between 0.68 to 0.89. Table 4 shows the details. Paths ITP4 – ITP6 were excluded from the CFA because the factors of these paths were below the standard threshold.

**TABLE 4 ICT Constructs and Measurements**

Constructs and Measurement items	Standardized Loadings	Mean	Standard Deviation	Cronbach Alpha	Composite Reliability	Average Variance Extracted
<b>PROBLEM</b>					<b>0.8863</b>	<b>0.6632</b>
ICTP01	0.8911	2.36	1.637	0.814		
ICTP02	0.8641	2.78	1.678	0.814		
ICTP03	0.8050	2.95	1.764	0.811		
ICTP07	0.6812	3.62	2.047	0.796		
<b>IMPORTANCE</b>					<b>0.9274</b>	<b>0.6461</b>
ICTI01	0.8279	5.45	1.484	0.774		
ICTI02	0.8075	5.37	1.512	0.775		
ICTI03	0.8058	5.45	1.359	0.777		
ICTI04	0.7759	5.65	1.334	0.780		
ICTI05	0.7832	5.54	1.348	0.778		
ICTI06	0.8235	5.64	1.439	0.775		
ICTI07	0.8017	5.81	1.370	0.776		
<b>USE</b>					<b>0.9307</b>	<b>0.6578</b>
ICTU01	0.8164	4.99	1.537	0.773		
ICTU02	0.8381	5.03	1.415	0.776		

ICTU03	0.8360	5.14	1.315	0.776		
ICTU04	0.8330	5.41	1.373	0.777		
ICTU05	0.8220	5.27	1.412	0.772		
ICTU06	0.8044	5.55	1.373	0.773		
ICTU07	0.7214	5.78	1.288	0.775		

In addition, Table 5 displays the analysis of discriminant validity and the square roots of the average variance extracted. The discriminant validity table matrix shows acceptable discriminant validity (Fornell & Larcker, 1981).

**TABLE 5 Latent Variable Correlations**

	<b>Problem</b>	<b>Importance</b>	<b>Use</b>
<b>Problem</b>	<b>0.8144</b>		
<b>Importance</b>	-0.4404	<b>0.8038</b>	
<b>Use</b>	-0.3559	0.6493	<b>0.8111</b>

(Note: the square root of Average Variance Extracted is shown in bold at diagonal and factor correlation coefficients)

***(C) Test of Structural Model***

Table 6 shows standardized path coefficients and corresponding hypothesis results. While Figure 4 depicts the conceptual framework and tested hypotheses. Generally, the hypothesized structural model explains the average variance and makes clear the path coefficients. First, the ICT problem is negatively related to the ICT use, Problem  $\rightarrow$  Use  $\beta = -0.09$  and  $t = 1.32$  and the result is greater than the p-value threshold ( $p > 0.05$ ). This indicates the higher the perception of ICT problems in Nigerian context, the lower the perception of its use. Therefore, hypothesis 1 is rejected. Second, the ICT importance is negatively influenced by ICT problems, Importance  $\rightarrow$  Problem  $\beta = -0.44$  and  $t = 6.98$ , the result is significant at ( $p < 0.0001$ ). The higher the perception of ICT problems, the lower the perception of its importance. Third, ICT importance is positively influenced by ICT use, Importance  $\rightarrow$  Use  $\beta = 0.61$  and  $t = 9.00$ , the result is significant at ( $p < 0.0001$ ). The higher the perception of ICT importance, the higher the perception of its use. ICT importance is the strongest predictor of use  $\beta = 0.61$  while ICT problem is the lowest predictor of ICT use with  $\beta = -0.09$ . Thus, hypotheses 2 and 3 are accepted. The overall variance that could be explained by the ICT study model is ( $R^2=42.8\%$ ). The coefficient of determination is one way to predict the accuracy of a model. Leppäniemi et al. (2017) proposed (0.25) as weak, (0.50) as moderate and (0.75) as substantial. Based on this proposition, the overall  $R^2$  of the study model is close to moderate.



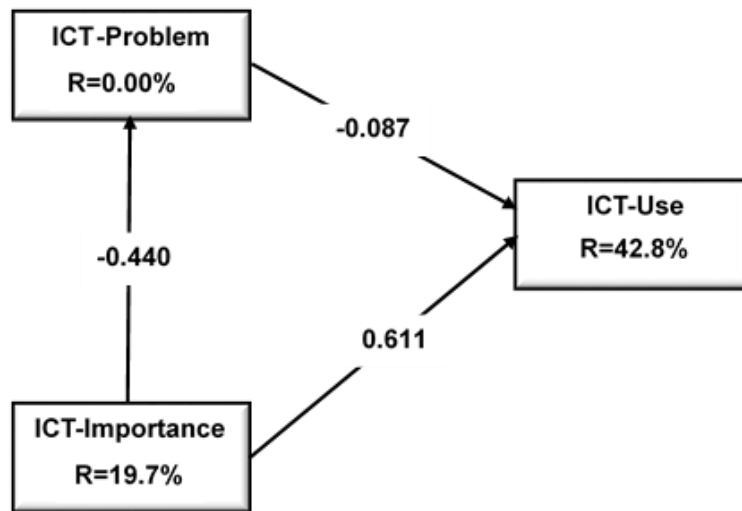


FIGURE 4 Conceptual Framework and Tested Hypotheses

TABLE 6 Standardized Path Coefficients and Corresponding Hypothesis Results

Hypothesis	Path	Sample Mean (M)	Standard Deviation (STDEV)	Standard Error (STERR)	Beta	T-Test	Hypothesis Confirmed
H1	Problem → Use	-0.0853	0.0661	0.0661	-0.087	1.3135	Rejected
H2	Importance → Problem	-0.4429	0.0632	0.0632	-0.440	6.9717	Accepted
H3	Importance → Use	0.6136	0.0679	0.0679	0.611	8.9976	Accepted

## 4.2 | Qualitative Results

### (A) ICT Problem

Various problems encountered in the process of ICT use in internationalization were gathered during the interviews with the study participants. One of the major challenges highlighted by the participants is the issue of power supply, as shown in this comment: *One of the major challenges we have is electricity down time.... you want to work on your laptop or desktop, and you just discovered that there is no power supply. As far as ICT is concerned, you can't do away without power. (P3)*

The above comment and other comments from the respondents suggest that there is unstable power supply in Nigeria which affects their use of ICT for business and internationalization. This is seen as a major issue as most of the ICT tools require a power supply to function and be adopted for various business operations. Another challenge raised that topped the worries of business owners is *Internet Issues*, as reflected in some of their responses: *“...in the area of internet banking, I have series of issues ... I have problems, for example, internet was not going at times it got stuck.P2”*. Another SME decision-maker lamented about internet issues, as evident in his statement: *“...there is a problem of shutting down our operation, because whenever internet service provider had some challenges. We*

*cannot do anything really... We just sit down. (P6)*". Other related problems are connectivity issues, affordability issues, and internet strength.

In addition to the above problems, the required skill for using ICT tools is also a concern for SMEs decision-makers. One of them emphasized the skills and knowledge required to effectively internationalize with ICT tools as reflected in this quote:

I cannot design and host a website for my businesses, I don't have the required skill to manage one. I am still asking around to get someone that will give me what I want to promote the business. I of course use social media but again, I think I still need to have some knowledge of its use optimally to get the actual result I desire. (P1)

Furthermore, issues of privacy, security, trust, and system anxiety are ICT problems of Nigerian SMEs' internationalization. Privacy is considered to exist when consumers can control their personal information (McCloskey, 1980). Culnan and Bies (2003) also sees it as when they can restrict the use of their personal information. James et al. (2008) stress that reliance on the collection and use of data in today's technology-dependent society has increased privacy concerns. The growing concerns of privacy amongst internet customers were reported in extant studies such as Acquisti & Grossklags (2005) which led to a suggestion by Shah et al. (2013) that there should be a mechanism that enables customers to manage the privacy of their personal data online. Trust, in an online environment, has been found to be significant in decision making for online transactions (Ba & Pavlou, 2006; Sha, 2009). Flavian et al. (2006), Qureshi et al. (2009) have also found trust to be a key predictor of both initial online purchase and repeat purchase. Surveys show that the success of current online shopping sites is primarily attributed to the fact that they earned the trust of users (Qureshi et al., 2009). Security is an issue that plague-s the online marketplace, such as dubious websites, fraudulent access, or attacks on consumers' computers from hackers (Udo, 2001), and these factors may erode confidence in using online platforms. Security is seen in a broad sense to encompass the protection of assets including both physical and digital (Olaleye et al., 2017). System anxiety can be described as the apprehension or fear that results when an individual is faced with the possibility of using information system (Wu and Wang, 2005). Studies show that many computer users feel anxious when dealing with computer systems, especially when initially interacting with them (Simonson et al., 2011). All these problems are encountered in using ICT for internationalization in the Nigeria context.

### ***(B) ICT Use***

The ICT tools used by SMEs and their roles in SMEs' internationalization were evident. Firstly, SMEs' decision makers showed that they understood the role of ICT on their SME and they were using different ICT tools. For instance, the cinematographic, solar systems, and IT businesses have websites, but not to the level of interactivity where an order can be placed, and payment made. Meanwhile, food packaging, printing and publishing, and other business do not have websites, but they are using different ICT tools in operations (depending on their line of business).

Illustratively, the solar systems producer has many customers spread across different parts of Nigeria and beyond. For the company, ICT is so cardinal in the business that they would achieve little or nothing without it. The different ICT tools employed by the solar

producer are summed up as follows:

... Very, very, useful! In fact, I must confess that in our daily operation, without ICT tools, we will not be able to do anything because we're in the outskirts of Lagos. And with the product we make is useful for almost everybody in the country. It's almost difficult and impossible for us to reach various states out of 36 states in Nigeria. But with the aid of ICT tools, e-commerce website, computer, internet, printers and all others, we're able to reach the interiors of different places that we could not have with our present financial status to reach, but with the help of ICT tools we can reach them and sell our product to them. (P6)

For the cinematographic business, the deployment of ICT is around uploading pictures on social media pages like Facebook, Instagram, and Twitter. They relied on these social media pages for advertisements. The interviewee from the company said “...it's on Twitter, we get work more from Twitter, we get one student from Twitter, who is a referral and gave us a billboard deal” (P4). However, food packaging and distribution and publishing firms used other ICT tools differently. For example, food packaging companies do not own their own websites, but their use of ICT involves:

Computer system, WhatsApp and other social media platform with internet to obtain order and get across to customers until delivery is done. This is what we basically do with ICT at the moment. (P7)

From the above illustrations, it is deduced that interviewees understood and used ICT tools in their businesses. Similarly, it is deduced that they unanimously assert that ICT tools are necessary for their businesses to run effectively despite their various business sectors. Two of the interviewees noted that:

ICT is a very good tool for a business man or a business woman who really want to grow because it has removed a lot of bottlenecks in business transactions. Before now if you remember vividly I am talking about 15 to 20 years back if I want to send my monthly bill to South Africa... but now I can finish a transaction within a space of 30 minutes... You will find out that using ICT now has reduced drastically even to the barest minimum the time of operational processes (P2).

Without ICT tools, our business cannot run. My view about ICT tools is that the tool has really helped the business a lot. For example, now I am working on a project presently.... I hardly met with any of the people hosting it and all our communication is through emails and social media. We never met, but we exchange mails, that's what ICT has been doing. It has limit the stress to the bare minimum, it has really helped the business and is really helping the business (P1).

In a nutshell, various ICT tools are used by business owners, as gathered from the interview data. Social media apps, SMS, email, blogs, and websites are the main ICT tools employed by Nigerian SMEs. These tools were used for various purposes such as making orders, facilitating contracts, tracking deliveries, and communicating with customers and suppliers, especially concerning their internationalization activities.

### ***(C) ICT Importance***

The interviewees attested to the importance of ICT in their business operations and internationalization. They stated that ICT tools enabled them to promote their business worldwide and to gain global recognition. They added that ICT tools brought efficiency, stress reduction, reduction of operation processing time, and international business facilitation. Two of them made the following comments:

*I am fully aware of the importance of ICT in businesses, particularly SMEs. I understand that it is a tool for an effective overall management of businesses in this period because there is hardly a business transaction that one will do that will not involve you to relate with the ICT and so it becomes an important tool to every growing business man and woman who desire to grow very fast you need ICT.*  
(P2)

*ICT has made operation quite affordable, with regards to advertisement, it is cheaper than normal print adverts. ICT has really helped to create awareness and marketing, through the internet we have been able to associate ourselves with other businesses.* (P7)

When pinpointing the importance of ICT in the SMEs' internationalization, the study participants showed that they understood internationalization. For these decision makers, internationalization implies having customers outside the country. They noted that they are internationalized because parts of their customers are from abroad. It is deduced from their responses that their foreign customers learned about the SMEs through social media platforms, blogs, and websites where inquiries on products, offers, and training programs are made. The study participants mentioned that inquiries and contact with customers may not come regularly if there is no consistent follow-up through these platforms. The participants also mentioned that consistent deployment of ICT tools is imperative in continuing to attract customers across different countries of the world. Participants 4 and 3 said:

*Yes we do, because, we have some clients, we have worked for, presently this year and last year and years back as well, we have clients in UK, we have in Germany, but it's not as constant, like always once in a year, we always have clients that will come from outside country and due to the fact that we put out pictures on social media, through Facebook and website and blogs, so we know that, at least we receive a call from outside country, once for training as well(P4).*

*...because people can contact us and do one or two things from the website in and outside the country, make inquiries about what we do or even consult us on a particular issue through that website" (P3).*

Therefore, it is evident from the above statements that Nigerian SMEs are internationalizing with ICT tools, specifically the use of websites and social media platforms. This is noted by Loane & Bell (2002), Johnson (2004), Bell & Loane (2010), and Beneki et al. (2011) who state that ICT tools are employed by the SMEs purposely for their visibility and product promotion in a foreign market.

## 5 | DISCUSSION

The objective of our study was to understand the role of ICT in SME's internationalization in Nigeria. A mixed method approach was employed. In the qualitative study, seven semi-structured interviews were conducted. Firms in the following sectors: printing, marketing and sales, cinematography, information technology/computer hardware, solar system services and food packaging were represented. The results revealed that Nigerian SMEs are aware of ICT tools and they used them to internationalize. These results relate to the findings of Aspelund & Moen (2004), Piscitello & Sgobbi (2004), Esselaar et al. (2006), Bell & Loane (2010), Beneki et al. (2011), Manochehri et al. (2012), Consoli (2012) and Herath & Karunaratne (2015), who confirmed that SMEs are aware of ICT tools and used them to facilitate their business operations. Similarly, the results of this study showed that Nigerian SMEs employed websites and social media platforms for their internationalization activities, as it was explained by Johnson (2004), Sinkovics & Bell (2005), and Todd & Javalgi (2007), Vasilchenko & Morrish (2011), and Beneki et al. (2011). Meanwhile, the qualitative results showed that Nigerian SMEs encountered some problems in the use of ICT tools. The problems are unstable electricity supply, internet-related problems, insufficient ICT skills, privacy concerns, insecurity of ICT tools, lack of trust, and system anxiety of the ICT users. Most of these problems were not mentioned by previous scholars. Storey (2004) and Sinkovics & Bell (2005) stated "cost", Pavic et al. (2007) mentioned "lack of skills", and Heeks (2010), Kozma & Vota (2014), and Pillay (2016) identified "lack of infrastructure" as problems facing the application of ICT tools by SMEs. The problem of internet, privacy, cyber insecurity, trust, and system anxiety are new challenges identified by this study.

Despite the above ICT problems, the quantitative results showed that ICT problems did not affect the use of ICT tools by Nigerian SMEs. The first hypothesis aimed to find if there was any relationship between ICT problems and the use of ICT by Nigerian SMEs. Unexpectedly, the relationship was negative. This implies that SMEs are not hindered by the identified challenges for the use of ICT tools. This result corroborates with the findings of the qualitative interviews, which showed that the study participants used ICT tools despite the fact they confronted many problems. This result supports other works, such as Uweigbe & Olatunji (2009), Apulu & Ige (2011), and Otesile (2013), which state that Nigerian businesses are employing ICT tools. Meanwhile, this result contributes to the existing works by emphasizing that Nigerian SMEs use ICT tools to internationalize.

Nigerian SMEs' use of ICT seems to be motivated by their perception on the importance of ICT tools. Both quantitative and qualitative results affirmed that these SMEs used ICT tools because they know that it is critical for their business activities. Their affirmation supports the work of Hempell et al. (2004), Hyytinen & Pajarinen (2005), Bell & Loane (2010), Ollo-Lopez & Aramendia-Muneta (2012), Akomea-Bonsu & Sampong (2012), Sabbagh et al. (2012), Tarutéa & Gatautisa (2014), and Hashim (2015) who argued that SMEs employed ICT tools to improve their business operations and profitability. Hence, this perception of Nigerian SMEs led to the acceptance of hypotheses 2 and 3, which proposed that the importance of ICT tools would mitigate the ICT problems and facilitate ICT use. Similarly, the findings and accepted hypotheses of this study showed that Nigerian SMEs used ICT tools for internationalization purposes because they would like to be visible and

recognized at a global level. This corroborates with claims of Bitler (2001), Johnson (2004), Sinkovics & Bell (2005), Todd & Javalgi (2007), Pavic et al. (2007), Bell &Loane (2010), Vasilchenko & Morrish (2011), Manochehri et al. (2012), Consoli (2012), and Herath & Karunaratne (2015).

Furthermore, the above findings espouse critical implications for SMEs' use of ICT tools in an emerging market context and it contributes to the ICT literature in five major ways. First, the importance of ICT remarkably predicts the use of ICT tools for internationalization. This shows the necessity of ICT in business activities. It suggests that the higher the perception of ICT importance, the higher its use for internationalization. The main effects of ICT as enumerated by Consoli (2012) are applicable to developing countries. As explained by Gordon (2000), Baily & Lawrence (2001), and Oliner & Sichel (2001), investments in ICT-related activities had a considerable effect on the productivity of the labor force and on economic growth of nations.

Second, the importance of ICT lessens the concerns felt by Nigerian SMEs associated with the problems of ICT tools. Therefore, it can be argued that the higher the perception of ICT importance, the lesser its challenges become. As it is shown in the study, Nigerian SMEs desired to operate their businesses without a robust internet platform because they focused on the importance of the platform. Similarly, none of the participant SMEs complained about cost, which was mentioned to be one of the biggest challenges facing ICT adoption in Nigeria (Uweigbe & Olatunji, 2009; Apulu& Ige, 2011; Otesile, 2013), because they focused on the benefits of ICT tools instead of their cost.

Third, this study provided new sets of challenges for the use of ICT tools in the Nigeria business context. The study affirmed the problems identified by Pillay (2016) for developing countries, but it also added that electricity, internet, privacy, trust, and security concerns are associated problems for the use of ICT tools in Nigeria. Fourth, Nigerian SMEs seems to lack strategic focus concerning the use of ICT for their internationalization. This is noted from the qualitative data that found, despite these SMEs owning active websites and different social media platforms, only few of their decision makers had strategic plans for the ICT tools. The lack of strategic focus echoes the concern of Storey (2004) and Sinkovics& Bell (2005) who theorized that the use of ICT tools could not serve as the only means to turn things around for SMEs. Although lack of focus is associated with macroeconomic challenges in developing countries (Storey, 2004; Pillay, 2016), this seems to be an internal problem for SMEs, because these SMEs were able to use ICT tools despite external problems such as cost.

Further, lack of ICT skill appears to be a serious problem to Nigerian SMEs' internationalization. The qualitative data revealed that newly identified problems (privacy concern, internet, insecurity, trust, and system anxiety) were associated with insufficient ICT knowledge among decision makers of Nigerian SMEs. It is deduced that if the decision makers could empower themselves with ICT skills, they would be able to deal with those new challenges as well as have a strategic focus for their internationalization.

Therefore, it is argued in this study that the level of importance of ICT use in the Nigeria business context overrides any associated problems, especially if ICT tools would be used for internationalization purpose of SMEs. It is also argued that lack of strategic focus among Nigeria SMEs is a microeconomic problem instead of a macroeconomic challenge as

previously believed. Additionally, it is argued that lack of ICT competence poses a serious challenge to Nigeria SMEs' internationalization.

## **6 | CONCLUSION, LIMITATIONS, AND MANAGERIAL IMPLICATIONS**

### **6.1 | Conclusion**

The impact of the use of ICT tools on SME internationalization has been extensively analyzed in previous works such as Consoli (2012), Tarutė & Gatautis (2014), Ameyaw & Modzi (2016), Hagsten & Kotnik (2017), and Talebi et al. (2017), all of which have established that ICT increases business outputs. The adoption and use of ICT tools in developing countries therefore face many challenges related to the state of the economy, unstable electricity supply, internet-related problems, insufficient ICT skills, privacy concerns, insecurity of ICT tools, lack of trust, and system anxiety of the ICT users. However, this study shows that Nigerian SMEs were able to optimize their ICT tools despite the problems they confronted with ICT. Similarly, this study shows that Nigerian SMEs use websites and social media platforms for their internationalization. Additionally, the study reveals that Nigerian SMEs focus on the importance of ICT tools more than their associated challenges. Further, the study pinpoints that Nigeria SMEs face internal challenges which mainly related to their strategic focus and ICT competence.

Therefore, this study contributes to ICT literature that states the perception of ICT tools would deter the problems of use of ICT tools. It also reveals that ICT tools are useful for the internationalization of SMEs, especially from developing countries like Nigeria. Similarly, this study contributes to internationalization literature by stating that the application of ICT tools is constrained by a lack of strategic focus and ICT knowledge of individual SMEs in the Nigerian context.

### **6.2 | Limitations and Managerial Implications**

Although this study made contributions to existing works, it has the following limitations. Firstly, the sample size of quantitative respondents was not sufficient for covariance structural equation modeling. Secondly, the sample size was not able to capture all the business sectors due to limited financial resources of the study. Thirdly, the number of interviewees and their associated business sectors was also small. Additionally, the industrial sectors that participated in both the quantitative questionnaire and qualitative interview were not comprehensive, and the differences in the sectors might affect the results of the study. Therefore, these limitations may hinder generalization of the study findings. Nevertheless, future scholars could expand the study of SMEs' internationalization with ICT tools with a focus on a specific business sector or the sectors that were not captured in this study. Similarly, future studies can investigate continuous use of ICT tools and the progress of SMEs. Application of other mixed-methods such as ethnography and online diagnostic tools can be used by future scholars to capture SMEs' business processes.

Besides the limitations, the study provides managerial implications. The results of this study have an impact on the business practices of SMEs in Nigeria and its stakeholders in four parts. First, SMEs, unlike big companies, have limited financial resources and smaller work forces with the capability to compete in an international market. Furthermore, business collaboration, partnership, and other means of internationalization involve rigorous

commitment, which may not be easily achieved by SMEs. This study shows Nigerian SMEs that they can optimize their business practices via ICT tools. It orientates SMEs' business owners on how to cut costs, save time, and reduce human error in business dealings. Second, the outcome of this study will relieve the SMEs' fear of using technology. Thus, the study will motivate SMEs to profit by using ICT, and this development will increase ICT adoption and usage rate. Third, this study shows that Nigeria SMEs should work on their strategic plans, especially for their internationalization. Hence, this study enlightens SMEs to consider ICT in their strategic plan as it was proposed by Ukpabi and Karjaluoto (2017) who argued that emerging markets in Africa and some parts of Asia need to discover the importance of ICT adoption to promote their businesses. Lastly, this study shows that Nigeria SMEs should improve their ICT competence to improve their operation as it was proposed by Gbadegeshin & Kavoo (2016), who recommended that providing training for business owners is essential for business development in Africa. Therefore, it is highly recommended that government agencies responsible for promoting SMEs growth and expansion should focus more on ICT skill development and internationalization information for the staff and business owners of SMEs.

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