POLAC INTERNATIONAL JOURNAL OF ECONOMIC AND MANAGEMENT SCIENCE (PIJEMS)
DEPARTMENT OF ECONOMICS AND MANAGEMENT SCIENCE
NIGERIA POLICE ACADEMY, KANO

THE ROLE OF OWNERS/MANAGERS STRATEGIC CAPABILITY ON INFORMATION AND COMMUNICATION TECHNOLOGY AND SMES PERFORMANCE

Buba Musa Pulka Department of Business Administration, Faculty of Management Sciences, University of Maiduguri, Nigeria

Abstract

ICT resources are been employed in SMEs to enhance production, communication, innovation and performance. Despite the importance of ICT in the SMEs, the review of the extant literature revealed that there is a dearth of research that has investigated the relationship between general, communication and marketing-oriented ICT on SMEs performance as expounded by Bayo-Moriones, Billon, and Lera-Lopez, (2013). Similarly, there is a scarcity of studies that have examined the moderating effect of strategic capability on the relationship between ICT resources and SMEs performance. To fill in the gaps, the study examined the moderating effect of strategic capability on the relationship between ICT and performance using primary data collected from SMEs operating northeastern Nigeria using a multi-stage sampling technique. In conducting the analysis of the data, the study used Smart-PLS 3.0. The results indicated that general oriented ICT has a positive significant effect on performance. On the opposing side, the results suggested that communication-oriented ICT has a negative significant effect on performance. Similarly, there is a negative insignificant effect of marketing-oriented ICT on performance. Moreover, the moderating relationship shows that strategic capability significantly moderated the relationship between general oriented ICT, communication-oriented ICT and performance. On the contrary, strategic capability did not moderate the relationship between marketing-oriented ICT and performance. Therefore, the results suggest that to achieve better performance, the owners/managers need general oriented ICT. Furthermore, there is a need for a high level of strategic capability in the SMEs for the communication-oriented ICT to have a positive effect on the performance.

Keywords: SMEs, Performance, ICT, general oriented ICT, communication oriented ICT, marketing oriented ICT, strategic capability

1. Introduction

Information and communication technology (ICT) resources is defined as the ICT use by the SMEs that improve the production, communication, process and design of SMEs for generating high productivity, efficiency, innovation, strengthening the customer-supplier relationship, increase the profitability of the firms and improvement in the decision-making process and overall firm performance(Okundaye, Fan, & Dwyer, 2019;Bayo-Moriones, Billon, & Lera-Lopez, 2013; Yusuf, 2013).

The application of ICT in SMEs is essential for the creating socio-economic development of a nation's economy, particularly in emerging economies (Okundaye et al., 2019; Yunis, Kassar, & Tarhini, 2017). The SMEs use different ICT resources, depending on the needs and financial capabilities of the SMEs. ICT enables the SMEs to make and take quick and precise decisions and implement strategies in the SMEs. In other words, ICT is a decision support system (DSS) (Devaraj & Kohli, 2003). According to Kushwaha (2011) "SMEs need ICT-based solutions regarding multitasking, expanding customer base, raising productivity, controlling costs, working remotely, fast and accurate decision-making and facilitating collaboration". Pokharel (2005) and Taylor and Murphy (2004) argue that ICT enable SMEs to improve their productivity, efficiency, operations and it make the SMEs entrepreneurial network more simple and straightforward that enable the SMEs to access needed resources in the external environment. It helps in reducing the cost of operation and access to the global market (Schware, 2003).

ICT to help in generating competitive advantage to the SMEs and it also help the SMEs inbecoming market leaders (Rahayu & Day, 2017; Zafar & Mustafa, 2017). Similarly, SMEs could utilise ICT resources to enable the formulation and implementation of strategic planning, research and development, and to use to forecast into the future of the SMEs to achieve goals (Agwu & Murray, 2015; Keller & von der Gracht, 2014). Furthermore, ICT resources allows for flexible strategies and the SMEs might do better in the market and excel in product/service differentiation (Tarutė & Gatautis, 2014).

SMEs can also benefit from using ICT resources to make improvement on the existing products/services through creativity and innovation (Ngwa, Ngoma, & Napitupulu, 2018; Wang & Miao, 2015; Zafar & Mustafa, 2017). Moreover, ICT resources help in promoting efficient utilisation of resources and in discovering entrepreneurial opportunities (Rahayu & Day, 2017). Similarly, ICT resources provide an opportunities for the SMEs to position themselves, compete and grow (Rahayu & Day, 2017; Yunis, El-Kassar, & Abbas Tarhini, 2017; Zafar & Mustafa, 2017). Embracing ICT can help the SMEs to make innovative products that can compete internationally (Rahayu & Day, 2017; Yunis et al., 2017; Zafar & Mustafa, 2017).

Similarly, Annunziata and Isabella (2008) contended that ICT might lead to the achievement of competitive advantage, overcome access to market barriers, helps in the integration of entrepreneurial network, automation of production and operation process, lead to the speed of service delivery and reduce the cost of production and processing. Melchioly and Saebo (2010) indicated that ICT had helped tremendously in achieving SMEs performance. Especially the use of ICT for communicating and networking with customers, suppliers, integrating isolated business and markets, increasing access to market information, increase the speed of service and reduce time consumption and cost. Ashrafi and Murtaza (2008) and Buhalis (2004) contended that ICT enhances strategy formulation, implementation, and operations, reduces the cost of operation and enhance SMEs efficiency and customer service satisfaction.

Kollberg and Dreyer (2006) argue that ICT have paved way to innovation that provides a means of gathering, processing, storing, distributing and exchanging of information either for intra/inter-organisation use. That is what made Blackburn and Athayde (2000) argue that ICT assists in achieving high performance and it encourages innovation and creativity in the SMEs. Countries like India, Korea, and Taiwan and China provide GBS that enables SMEs to obtain and use ICT. For example, India is providing import duties subsidy, tax relief and holidays for ICT related product and services (Akomea-bonsu & Sampong, 2012).

In the same vein, Cohen and Kallirroi (2006), Subba Rao, Metts and Mora Monge (2003), Shiels, McIvor and O'Reilly (2003) contended that ICT is making it easier and simple to access raw materials, access to market and market information both locally and internationally, enable SMEs in cutting costs of doing business, achieving competitive advantage, strengthen network relationship and collaboration among SMEs, large business, suppliers, customers and other stakeholders. Dedrick, Gurbaxani and Kraemer (2003), Devaraj and Kohli (2003) and Melville, Kraemer and Gurbaxani (2004) affirm that usage of ICT exert positive impacts on the SMEs' performances regarding efficiency, effectiveness, market worth and relative market share.

Moreover, According to Arvanitis, Loukis and Diamantopoulou (2013) ICT enhance effective communication and ease the exchange of knowledge among employees in the SMEs, it simplifies the blending of operational and scientific knowledge from different areas, It provides linkages for research partnering and monitoring, and it reduces transaction costs. ICT helps in providing access to improving and enhancing productivity (Abouzeedan & Busler, 2002). Gibbs and Kraemer (2004) are of the view that ICT has led to a significant interconnection and interrelationships among different business across the globe regardless of distance or geographic location. ICT gives opportunities to the SMEs to implement market penetration strategies and explore the market (Porter, 2001). Bayo-Moriones and Lera-Lopez (2007) argue that to obtain the right ICT, using right skills and the ICT rightly enhances the SMEs competitive advantage in the market.

Therefore, this means that with the advent of ICT, the world is now a global village, if not the global palm. This gives the opportunities for SMEs to go international, it helps in improving the entrepreneurial capability, entrepreneurial network, regional trade, international trade and getting new investment opportunities in local, national and international markets (Suriyapperuma, Mohd, Shukri, Ali & Premarathne, 2015). This indicates that governments of various countries ought to strive to assess the ICT needs of SMEs in different sectors of the economy and various stages of development to provide the needed ICT and ICT support services to enhance productivity and SMEs performance. Similarly, SMEs can utilise the opportunities given to them by ICT to gather and disseminate information to individuals, groups, organisations, government agencies and other institutions that are related to their businesses.

Furthermore, Harker and Akkeren (2002) and Ghobakhloo, Arias-Aranda and Benitez-Amado (2011), listed some factor that could influence ICT, these comprise; SMEs characteristics, the readiness of the SMEs to adopt ICT, external influence, customers, suppliers, organisational structural, size of the SMEs, type and nature of the SMEs and information intensity. In addition, Dibrell, Davis, Craig (2008) added that management strategies and techniques also influence ICT. Therefore, the structure of the paper after introduction is followed by problem statement, objectives of the study, hypotheses, literature review, methodology, results, conclusion and recommendations.

1.2 Problem Statement

Despite the growth in the use of ICT resources in SMEs across the globe, the frequency at which ICT resources are been assimilated and use in SMEs in emerging economies like Nigeria to enhance performance is comparatively low(Ngwa et al., 2018; Okundaye et al., 2019; Rahayu & Day, 2017). The low degree of assimilation and use of ICT in the SMEs in the emerging economies has led to little contribution of the SMEs to economic growth and development(Okundaye et al., 2019; Rahayu & Day, 2017; Zafar & Mustafa, 2017). Furthermore, there is large difference concerning ICT penetration and use in emerging economies and advanced countries. According to International Telecommunication Union (2014) as cited in Okundaye et al., (2019), the emerging economies have penetration rate of 32.4% which is very low compared to penetration rate of 78.3% in advanced countries. Similarly, in Nigeria, even though the ICT do assist in achieving better performance in the SMEs, there exist some practical issues/problems that hinders the performance of SMEs in Nigeria over the years. these problems include, low ICT assimilation and usage, low access to vital information and limited ICT capability(Okundaye et al., 2019;Mary, Leonard, & Onwuzuligbo, 2015;Adebisi, Alaneme, & Ofuani, 2015; Femi Egbesola, 2015).

Also, the extant literature has helped in identifying some literature gaps on ICT and SMEs performance that inspire and justify the study. Firstly, there is a paucity of research that has been conducted on the influence of ICT on SMEs performance particularly, in the study area. Secondly, though there are studies that provided empirical evidence that ICT resources have a positive influence on the SMEs performance(Chege et al., 2019; Hagsten & Sabadash, 2017;Castel & Gorriz, 2017;Yunis, El-Kassar, & Abbas Tarhini, 2017).On the contrary, other studies provided evidence that ICT resources have no significant influence on SMEs performance(Azam, 2015; De Stefano, Kneller, & Timmis, 2016). These contradictions and inconsistencies in the literature indicate that up till now there are unbridged gaps in the understanding of the fundamental influence of ICT on SMEs performance. Thirdly, there is a lack of research that has reported the moderating influence of strategic capability on the relationship between ICT and SMEs performance.

Similarly, the majority of studies that have been conducted on ICT and SMEs performance are concentrated in developed countries. These countries are characterised by different and high level of ICT resources, ICT assimilation and use, economic development and innovation and national culture (Arvanitis et al., 2013). Similarly, Arvanitis et al., (2013) pointed out that majority of the studies conducted focused on hardware ICT (equipment) and less attention are given to the influence of ICT knowledge, skills and capabilities on performance. Equally, substantial studies on impact of ICT is concentrated on supply chain performance (Zhang,

Donk, & Vaart, 2016).Moreover, many of the research and literature dwell on ICT adoption, ICT usage, barriers and challenges for adopting ICT in SMEs, the role of ICT and factors influencing adoption of ICT(Ngwa et al., 2018; Okundaye et al., 2019; Rahayu & Day, 2017). Therefore, it is argued in the study that by studying ICT adoption, ICT usage, barriers and challenges for adopting ICT in SMEs, the role of ICT and factors influencing adoption of ICT is insufficient scientific premises to guarantee the improvement of SMEs performance both practically and empirically. Similarly, there is the need to know more about ICT resources and SMEs performance in developing economies like Nigeria. This would provide a background to test and expand existing theories in this field and validation of instruments in a developing country. Therefore, this study bridged these gaps by investigating the role of owners/managers strategic capability on the relationship between information and Communication Technology and SMEs Performance.

1.4 Objective of the Study

Therefore, the objective of this study is to examine moderating role of strategic capability on the relationship between the relationship between general oriented ICT, communication oriented ICT, marketing oriented ICT and SMEs performance.

1.4 Hypothesis of the Study

H1: general oriented ICT resources are significantly related to SMEs performance.

H2: communication oriented ICT resources are significantly related to SMEs performance.

H3: marketing oriented ICT resources is significantly related to SMEs performance.

H4: strategic capability significantly moderates the relationship between general oriented ICT resources and SMEs performance.

H5: strategic capability significantly moderates the relationship between communications oriented ICT resources and SMEs performance.

H6: strategic capability significantly moderates the relationship between marketing oriented ICT resources and SMEs performance.

2. Literature Review

Information and communication technology (ICT) denotes to the systems used to generate, transmit, store, process, display, create, and automate information and communication dissemination in the firm (Chege et al., 2019). TheICTcomprisethe use televisions, telephones, radio, satellite systems, video, computers, network software and hardware (Ali, Jabeen, & Nikhitha, 2016). The equipment also related use of emails, video-conferencing, blogs, and social media(Ali et al., 2016; Chege et al., 2019).

ICT has become one of the essential resources for the SMEs to achieve high performance. Many research highlighted the importance of ICT for the SMEs' survival, competitive advantage, growth and development. These studies include Castel and Gorriz (2017), Liu, Chen, Huang, and Yang (2014), Jorgenson and Vu (2005) and Hitt and Brynjolfsson (1996). The research highlighted the importance and adaptability of ICT by SMEs and how it influences SMEs performance. ICT encourage enhanced productivity, growth in market share, introducing new products/services, for better customer oriented products and services, promptly responding to changes in the market and it encourage innovation for better performance (Chege et al., 2019)

The use of ICT by SMEs enhance its performance (Tarute & Gatautis, 2014b). ICT allows the SMEs to improve its network relationship and improve efficiency (Alam & Mohammad Noor, 2009). ICT has many advantages to the SMEs which include providing required and useful information, overcomes traditional trade barriers and facilitate financial transactions of SMEs (Manochehri, Al-Esmail, & Ashrafi, 2012). ICT lead to efficiency, effectiveness, superior performance (competitive advantage, innovation and intangible benefits), growth (productivity, strategic and sales growth), expansion (organizational expansion, improved supply chain and international communication) and new products (improved product/services, introduction of new product/services and customer satisfaction) (Consoli, 2012). SMEs use one, two or more combination of internet, email, intranet, local area networks and wide area network of ICT. Some of the good qualities of ICT in any economy consist of the flexibility of a network, reasonable cost of ICT, reliability of the

network, geographic coverage, and range of available different ICT service providers. ICT enables the SMEs in designing, storing, creating and using electronic resources required in SMEs for the achievement of a better SMEs performance, economic growth and prosperity (Suriyapperuma et al., 2015).Similarly, Bayo-Moriones, Billon and Lera-Lopez (2013) classified ICT into three categories, namely general-use, communication and market-oriented ICT.

2.1 General Oriented ICT

General-use ICT resources comprise access to the internet and use of computers in the SMEs. Bayo-Moriones, Billon and Lera-Lopez (2013) internet and computers are the most common ICT been use in the SMEs for different firms processes that are associated with product/service designing, production and communication. According to Brady, Saren and Tzokas (2002), the use of ICT by the firms includes; (i) the centralised customer database, which further has some components such as integrated with sales, integrated with a call centre, integrated with internet, data consolidation and display, data mining and data warehousing. (ii) Internet ICT which include website design packages, interactive website applications, e-commerce applications, electronic data interchange, call centre, computer telephony integration, marketing evaluation software and contact management software. (iii) Computer hardware that comprises personal computers, networked computers, laptops and personal palm computer. (iv) sales related ICT that include customer relationship management, sales force automation packages, telemarketing, a point of sale information systems and customer applications. (v) research related ICT such as marketing information system, data analysis packages, internet survey design and application, online mailing lists, internet tracking software, monitoring and tracking software. (vi) analysis and planning related ICT such as marketing planning systems, executive support systems, decision support systems, knowledge management systems, pricing software, project management software, promotion tracking software and logistics systems. (vii) Office packages such as word processing, spreadsheets and presentation software.

2.2Communication Oriented ICT

According to Bayo-Moriones et al. (2013), communication ICT is the type of ICT resources used by the SMEs to improve internal and external communication and coordination of various activities of the SMEs that enable the efficient and fast utilisation of information which is expected to improve SMEs performance. By this, according to Anh & Matsui (2011) and Bayo-Moriones et al., (2013) the communication ICT resources would improve the flow of information from and into the SMEs that enhance the process of decision-making and taking, for better allocation of resources, cost reduction, improving business process, facilitate the interchange of cross-functional thoughts/ideas, it helps in the dissemination of new techniques in the SMEs.In addition, communication ICT resources according to Bayo-Moriones et al., (2013) include the intranet, extranet and e-mail. Communication ICT resources improve the communication system of the SMEs through integrating internal functions, processes and improving communication between different SMEs and alliance among various teams by establishing a viable network.

2.3Marketing Oriented ICT

Strauss and Frost (2001) define market-oriented ICT as the usage of electronic data and application for planning and executing the conception, pricing of ideas, distribution of goods and services to create exchanges that satisfy individual and organisational goals". According to Smith and Chaffey (2005), market-oriented ICT is the process of "achieving marketing objectives through applying digital technologies". Reedy and Schullo (2004) view market-oriented ICT as "the process that is targeted towards simplifying and conducting business communications and transactions over the networks". According to Berkowitz, Kerin, Hartley and Rudelius (2000), the main aim of online marketing for the firms is to expand their sales rapidly and to directly use transactional websites. Lucchetti and Sterlacchini (2004) maintain that websites are primarily used by the SMEs to improve its visibility and also to provide information about the existence of the SMEs, their products/services and much other information. Smith and Chaffey (2005) contended that market-oriented ICT has five benefits to the SMEs, these include; sales

growth, add value, get closer to the customers, save costs and expansion of the brand online.

2.4 Strategic Capability as a Moderator

Strategic capability relate to setting, evaluating and implementing of the strategies in the firm (Lans, Bergevoet, Mulder, &Woerkum, 2005). Also, strategic capability denotes to the capability of the SMEs in setting, assessing and executing strategies for achieving success (Rahman, Amran, Ahmad, & Taghizadeh, 2014). Similarly, strategic capability is the ability of a firm to set, evaluate, and implement sound long-term strategies that would assist in achieving the firms "goals, visions, goal setting, costing, staffing, scope and skills 'application, creating beneficial modifications, establishing tactics, strategic control, and moving forward in agreementwith targeted set of objectives"(Mamun, Fazal, & Zainol, 2019; Man & Lau, 2000).

Several prior studies stressed that lack of or insufficient capability in a firm could lead to low performance (Tehseen, Qureshi, & Ramayah, 2018; Tehseen & Ramayah, 2015).According to Aquilani, Silvestri, Ruggieri, and Gatti, (2017), Goldman and Scott, (2016), Tehseen, Ahmed, Qureshi, Uddin, and Ramayah, (2019) strategic capability tremendously assist the owners/managers and firms in aligning their resources, strategies and policies with the happenings in the external business environment to achieve long term better performance. Likewise, Tehseen, Ahmed, Qureshi, Uddin, and Ramayah, (2019) argued that strategic capability is vital in achieving better SMEs performance.

Although, there are studies that have reported the effect of strategic capability on SMEs performance (Al Mamun, Subramaniam, Binti Che Nawi, & Raihani Binti Zainol, 2016; Irene, 2017; Minimol, 2017; Stephen, Ayodele, Oluremi, & Ifeoma, 2017; Tamyez, Ishak, Ali, & Omar, 2017; Tehseen, Ahmed, Qureshi, Uddin, Thurasamy, et al., 2019; Tehseen, Qureshi, Johara, & Ramayah, 2020; Tehseen & Ramayah, 2015), the studies only examined the direct effect, and failed to examine the moderating effect of strategic capability on the relationship between the dimensions of ICT resources and SMEs performance. Consequently, following the guideline on moderation by Memona et al., (2019), the study include strategic capability as a moderator and empirically tested the relationships using Smart-PLS.

2.5 Conceptual Framework of the Study and Supporting Theory (RBV)

The conceptual framework of the study is made up of three independent variables (general, communication and marketing oriented ICT), one dependent variable (SMEs performance) and one moderating variable (strategic capability). Figure 1 depict the conceptual framework and hypothesised relationships among the variables.

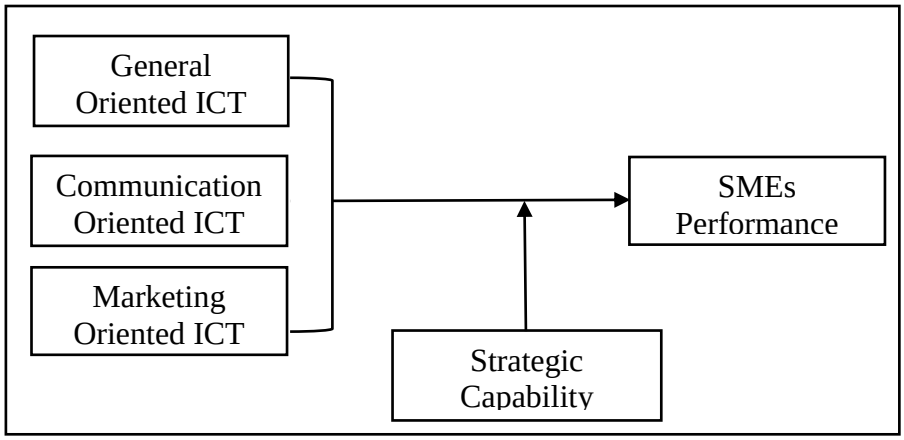

Figure 1: conceptual framework of the study
Source: Developed for the study

2.6 Resource Based View (RBV)

The study is underpinned by resource based view (RBV). The RBV upheld the packages of resources the SMEs own make it to attain competitive advantage and an improved performance (Barney, 1991; Connor, 2002; Grant, 1991). These resources own by the

SMEs have diverse effects on the performance of the SMEs. In addition, RBV contend that the resources own by SMEs need to be unique that would make it to have VRIN(valuable, rare, inimitable, and non-substitutable) for the organisations to achieve and uphold sustainable competitive advantage and a healthier performance (Barney, 1991; Eisenhardt & Martin, 2000; Penrose, 1959).

Thus, the resources of the firms are separated into two groups: physical and intangible resources (Grant, 1991, 1996). The Physical resources comprise long term assets such as machines, buildings, vehicles, plants, lands, and other supplies. As explained in the RBV, these resources are not bases for higher performance. The dispute here is that the resources are imitable and can be own simple by other businesses. Likewise, the intangible resources of the firms comprise non-physical resources such as capabilities, skills, capability, experience, knowledge, trademarks and patents. These resources as bases for higher performance, since they are valuable, rare, inimitable, and non-substitutable (VRIN).

As a result, ICT resources are one of the SMEs resources that can be used by businesses to achieve competitive advantage and higher performance. Equally, the ICT resources is divided into two, the tangible ICT, like the computers and printers, and intangible which include the ICT capabilities, capability and skills. Hence, it is debated in the study that the firms can benefits enormously from the application and use of ICT resources to improve the performance.

3. Methodology

3.1 Sample Size and Sampling Techniques

The sample of the study comprise of 470 SMEs in north-eastern Nigeria that were collected from the population of 1,726 SMEs. The sample size was determined with Krejcie and Morgan (1970) sample size determination table. The sample was drawn by means of multistage sampling method. At the start, the population was categorised into clusters according to states. Subsequently, the proportional to size simple random sampling method was used to determine the numbers of the SMEs that partook in every cluster. Finally, simple random sampling was used in picking the SMEs that play a part in the study.

3.2 Measurement of Variables

The variables in this study were measured by adapting instruments from previous studies utilising five points Likert scale, ranging from strongly disagree to strongly agree. The scaling for all the variables are; 1 = strongly disagree, 2 = disagree, 3 = neither agree nor Disagree, 4 = agree, 5 = strongly agree (Vagias, 2006).Similarly, SMEs performance is measured using 16 items adapted from the work of Santos and Brito, (2012). The measurement of ICT, was adapted from the work of Yusuf (2013) and Bayo-Moriones et al., (2013).Measurement of strategic capability was adapted from the work of Man (2001).

3.3 Data Collection Techniques

Self-administered and structure questionnaire was used to collect primary data from the respondents. The questionnaire has five components, namely demographic information, SMEs performance, general oriented ICT, communication oriented ICT, and marketing oriented ICT and strategic capability.

3.4 Data Analysis Techniques

Data analysis technique is the process of applying statistical tools and software to a study to establish the relationships between independent, dependent and moderating/mediating variables by testing the hypotheses of the study. SPSS version 24 and PLS-SEM 3.0 were used for the analysis of data in this study. This is because of its simplicity and completeness (Hair, Hult, Ringle, & Sarstedt, 2017; Sekaran, 2003).Specifically, SPSS version 24 was used for preliminary analysis. While, PLS-SEM 3.0 was used to test the hypotheses of the study.

4. Results

The results are divided into two; the assessment of measurement model and structural models (hypotheses testing).

4.1 Measurement Model

The measurement model was evaluated to determine the level of significance of all the indicator loadings of the constructs (standardised item loadings), Cronbach's alpha reliability, composite reliability and average variance extracted, convergent validity, and discriminant validity.

4.1.1 Standardized Outer Loadings

When applying PLS in the analysis of data, all the indicators must be assessed to determine their standardized loadings. The standardized loadings must of more/equal to 0.40 (Hair et al., 2017).Thus, the standardized loadings of every item in all the constructs were measured by means of the rule of thumb for retaining items with standardized loadings between 0.40 and above (Hair Jr, William, Babin, & Anderson, 2014). Towards the end, 11 items weigh less than 4.0. As a result, the 11 items were removed from the data set. Thus, table 1and figure 2 present the standardized loading of all the items in all the constructs used in the study. The standardized loadings of all the items in all the constructs have met the requirements of having the value of at least 4.0.

Table 1: Standardized Loadings

Items	Standardized Loadings
Communication Oriented ICT	
COI1	0.778
COI2	0.867
COI3	0.834
COI4	0.782
General Oriented ICT	
GOI1	0.874
GOI2	0.781
GOI4	0.492
Market Oriented ICT	
MOI1	0.664
MOI2	0.853
MOI3	0.787
MOI4	0.744
SMEs Performance	
SP1	0.651
SP3	0.796
SP5	0.809
SP6	0.697
SP7	0.808
SP8	0.630
Strategic Capability	
STC1	0.791
STC2	0.705
STC3	0.725
STC4	0.701
STC5	0.674

Source: field survey, 2019

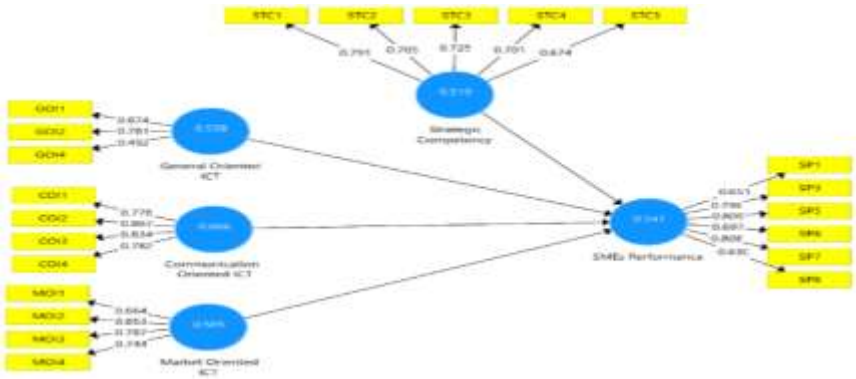

Figure 2: measurement model of the study
Source: Field Survey 2019

4.1.2 Internal Consistency Reliability

The internal consistencies of all the indicators were inspected via Cronbach's alpha and composite reliability. The coefficient values of the Cronbach's alpha are above 0.7 with exception of general oriented ICT that is having 0.692. The values of composite reliability are above the suggested value of 0.70 (Hair, Hult, Ringle, & Sarstedt, 2017). Similarly, the average variance extracted (AVE) was tested. The values of the AVE are above 0.50 as shown in table 2.Hence, this provided support for the presence of convergent validity.

Table2: Internal Consistency Reliability

Variables	Cronbach's Alpha	Composite Reliability	(AVE)
General Oriented ICT	0.692	0.769	0.538
Communication Oriented ICT	0.835	0.889	0.666
Market Oriented ICT	0.774	0.849	0.585
SMEs Performance	0.828	0.875	0.541
Strategic Capability	0.781	0.843	0.519

Source: Field Survey 2019

4.1.3 Discriminant Validity

Table 3 exhibits that all the variables have satisfied the Fornell-Larcker criterion for discriminant validity (Fornell & Larcker, 1981). The discriminant validity was reached by equating the correlations among the constructs with the square roots of the AVE (Fornell & Larcker, 1981). Hence, Table 3 presented that the square root of the AVE are all greater than the correlations among constructs. This suggests the existence of satisfactory discriminant validity (Fornell & Larcker, 1981).

Table 3: Latent Variables Correlations and Square Roots of Average Variance Extracted

Variables	Comm. Oriented ICT	General Oriented ICT	Market Oriented ICT	SMEs Performance	Strategic Capability
Communication Oriented ICT	**0.816**				
General Oriented ICT	0.612	**0.734**			
Market Oriented ICT	0.719	0.513	**0.765**		

SMEs Performance	0.174	0.373	0.157	**0.736**	
Strategic Capability	0.426	0.437	0.391	0.412	**0.720**

Field Survey 2019

4.2 Hypotheses Testing

A structural equation modelling/PLS 3.0 was used to determine the relationships among the endogenous and exogenous variables of the study (Hair et al., 2017). The modeliscapable of ascertaining different patterns of relationships among the variables of a study. The PLS assessment of the model used: path coefficients (β), path significance (p-value), variance explained (R^2) and blind folding techniques (Q^2)(Hair et al., 2017).

4.2.1 Direct Relationship

Table 4and figure 2 presents the results of the study. Objective one of the study is to examine the relationship between general oriented ICT and SMEs performance. The statistical results showed that there is significant relationship between general oriented ICT and SMEs performance (β = 0.345, t = 4.687 and P = 0.000). Based on the results, H1 is supported and thus is accepted that general oriented ICT has a significant influence on SMEs performance.

Objective two of the study is to examine the relationship between communication oriented ICT and SMEs performance. The statistical results showed that there is significant negative relationship between communication oriented ICT and SMEs performance (β = -0.152, t = 2.011 and P = 0.022). Based on the results, H2 is not supported and thus is rejected that communication oriented ICT has a significant influence on SMEs performance.

Objective three of the study is to examine the relationship between marketing oriented ICT and SMEs performance. The statistical results showed that there is insignificant negative relationship between marketing oriented ICT and SMEs performance (β = -0.029, t = 0.583 and P = 0.280). Based on the results, H3 is not supported and thus is rejected that marketing oriented ICT has a significant influence on SMEs performance.

Table 4 Testing the Direct Relationships

Hypo.	Relationships	Original Sample	Sample Mean	Std. Dev.	T Stat	P Values
H1	General Oriented ICT => SMEs Performance	0.349	0.345	0.075	4.687	0.000
H2	Communication Oriented ICT => SMEs Performance	-0.163	-0.152	0.081	2.011	0.022
H3	Marketing Oriented ICT -> SMEs Performance	-0.043	-0.029	0.074	0.583	0.280

Source: Field Survey 2019

4.2.2 Testing the Moderating Relationships

Table 5 and figure 3 present the results of the moderating relationships in the study. Objective four of the study is to examine the moderating effect of strategic capability on the relationship between general oriented ICT and SMEs performance. The statistical results showed that there is significant relationship between general oriented ICT and SMEs performance (β = 0.156, t = 1.805 and P = 0.036). Based on the results, H4 is supported and thus is accepted that there is significant moderating effect of strategic capability on the relationship between general oriented ICT and SMEs performance.

Objective five of the study is to examine the moderating effect of strategic capability on the relationship between communication oriented ICT and SMEs performance. The statistical results showed that there is significant relationship between communication oriented ICT and SMEs performance (β = 0.116, t = 1.508 and P = 0.066). Based on the results, H5 is supported and thus is accepted that there

is significant moderating effect of strategic capability on the relationship between communications oriented ICT and SMEs performance.

Objective six of the study is to examine the moderating effect of strategic capability on the relationship between marketing oriented ICT and SMEs performance. The statistical results showed that there is negative insignificant relationship between marketing oriented ICT and SMEs performance (β = -0.004, t = 0.316 and P = 0.376). Based on the results, H5 is not supported and thus is rejected that there is significant moderating effect of strategic capability on the relationship between marketing oriented ICT and SMEs performance.

Table 5: Moderating Relationships

Hypo.	Relationships	Original Sample	Sample Mean	Std. Dev.	T Stat	P Values
H4	General Oriented ICT => Strategic Capability => SMEs Performance	0.155	0.156	0.086	1.805	0.036
H5	Communication Oriented ICT => Strategic Capability => SMEs Performance	0.129	0.116	0.085	1.508	0.066
H6	Marketing Oriented ICT => Strategic Capability => SMEs Performance	-0.028	-0.004	0.089	0.316	0.376

Source: Field Survey 2019

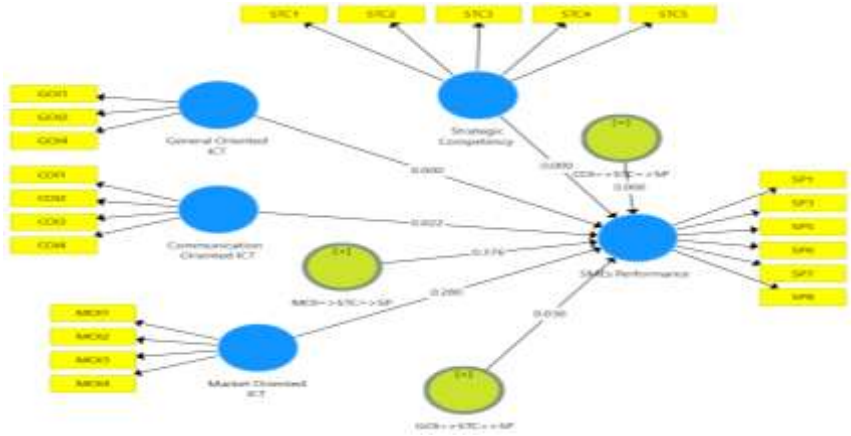

Figure 3: showing the direct and moderating relationship in the study
Field Survey 2019

4.3 Coefficient of Determination (R^2)

The variance explained value is the proportion of difference in the SMEs performance (dependent variable) as explained by the GBS (Elliott & Woodward, 2007; Hair et al., 2017). Cohen(1988) suggested a value of variance explained is classified into three; (1) the value of 0.27 is substantial. (2) The value of 0.13 is moderate and (3) the value of 0.02 is weak. Therefore, the findings of this study have variance explained value of 35%. Therefore, it is considered in this study that the value of the variance explained is substantial. Hence, table 6 show the results of the variance explain.

Table 6: Coefficient of Determination

Endogenous Variable	R Square	R Square Adjusted
SMEs Performance	0.235	0.224

Source: Field Survey 2019

4.4 Assessment of the Effects Size

Effect size show the relative effect of the GBS on the SMEs performance by the use of differences in the effect size (Chin, 1998). The effect size values of 0.02, 0.15 and 0.35 are viewed as weak, moderate and substantial. Thus, table 7 present the results of the effect sizes of the independent and moderating variables. In detail, the effect size of EBE is weak (0.038), while that of GBS is moderate (0.316).

Table 7: Assessment of the Effects Size

Latent Variables	f^2	Effect size
General Oriented ICT	0.085	
Communication Oriented ICT	0.011	
Market Oriented ICT	0.001	
Strategic Capability	0.119	

Source: Field Survey 2019

4.5 Assessment of the Predictive Relevance (Q^2)

In measuring the predictive relevance of the study, the cross-validated redundancy measure of was used (Barroso, Carri´on, & Rold´an, 2010; Geisser, 1974; Stone, 1974). Therefore, table 8 revealed that the predictive relevance is above zero (0.170). It infers that the model has predictive relevance. Table 8 present the results of the assessment of the predictive relevance of the study.

Table 8: Assessment of the Predictive Relevance (Q^2)

Endogenous variable	SSO	SSE	Q^2 (=1-SSE/SSO)
SMEs Performance	1,644.000	1,453.901	0.116

Source: Field Survey 2019

5. Discussion of Findings

The discussion of findings is divided into two sections, first, the discussion on the direct relationship and the section contain the discussion on moderating relationship.

5.1 Direct Relationship

Firstly, the results showed that general oriented ICT has significant positive effect on SMEs performance. This implied that the more the owners/managers of the SMEs utilise general oriented ICT in their firm, the more the performance of the SMEs would be enhanced. This findings agreed with some previous studies (Bayo-Moriones et al., 2013; Castel & Górriz, 2017; Suriyapperuma et al., 2015; Xu, Huang, & Xu, 2014).

Secondly, the results found that communication oriented ICT negatively affect the performance of the SMEs. Thirdly, the study found negative insignificant effect of market oriented ICT on SMEs performance. Nonetheless, the findings are not surprising since it is consistent with some previous findings (Azam, 2015; Bigliardi, 2013; De Stefano et al., 2016; Tarutė & Gatautis, 2014b) that have found ICT is not significantly influencing SMEs performance. There are some reasons why the results from this study differ with some previous studies on the relationship between ICT and SMEs performance. Firstly, Bartel, Ichniowski and Shaw (2007), Cardona, Kretschmer and Strobel (2013), Gunnarsson, Mellander and Savvidou (2004), Michaels, Natraj and Has (2014) contended that the lack or insufficient skills and capabilities of ICT may constrain SMEs from adopting, using ICT resources. Therefore, that might limit the advantages resulting from ICT resources in the SMEs. Moreover, Esselaar, Stork, Ndiwalana and Deen-Swarray (2006) argue that the major problems with ICT in SMEs are the high cost of investments and usage and that pose a severe threat to the SMEs. In another study, Apulu and Ige (2011) discovered that epileptic electricity supply, poor state of ICT infrastructure, high cost of ICT equipment, poor service from ISP providers, lack of ICT education and awareness, inadequate and inappropriate support from government, high cost of training on the use of ICT and high cost of maintaining the ICT are among major problems that hinders the adoption, utilization, benefits and influence of ICT resources on SMEs performance.

Moreover, the level of development significantly differs between developed and developing nations like Nigeria on ICT diffusion, behaviour and its influences on the SMEs performance (Arvanitis et al., 2013; Azam, 2015). The developed countries are characterised by a high level of ICT and ICT use, economic development, high level of innovation and distinct national culture (Arvanitis et al., 2013).

Furthermore, it could also be attributed to the demographic characteristics of the owners/managers. The demographic characteristics showed that majority of the respondents fall under no education (1.8%), informal education (4.4%), primary education (4.4%) and S.S.C.E. (32.5%). Therefore, it could be due to the low level of the respondent education that limits the SMEs from understanding, values, utilising and benefitting from ICT resources which could have a tremendous influence on the performance of the SMEs.

Based on the findings, therefore, it is concluded that ICT does not influence the performance of SMEs in the study area. But this does not mean that ICT is not important or does not influence SMEs performance. ICT remains one of the vital resources of the SMEs that could influence SMEs performance as explained in the literature.

5.2 Moderating Relationship

The study found that that strategic capability significantly moderate the relationship between general oriented ICT and SMEs performance. This implies that the high level of strategic capability of the owners/managers compliment the general oriented ICT resources in enhancing the performance of the SMEs. Therefore, the owners/managers of the SMEs need to acquire/possess level of strategic capability that is capable of enhancing the performance of their SMEs.

Although, the results of the direct relationship between communication oriented ICT and SMEs performance was insignificant, but with owners/managers strategic capability, the communication oriented ICT is positively and significantly have an influence on the SMEs performance. Therefore, this indicates that SMEs need strategic capability apart from communication oriented ICT to improve their performance. Thus, the SMEs need to continue acquiring strategic capability through training, development and other related knowledge obtaining sources for effective and efficient use of ICT resources that could enhance the performance of the SMEs.

Moreover, the results show that owners/managers with high level of strategic capability and communication oriented ICT would have a positive and significant influence on SMEs by enhancing its performance, improve its network relationship and improve efficiency, (Alam & Mohammad Noor, 2009; Tarute & Gatautis, 2014). Hence, strategic capability and communication oriented ICT aid in providing required and useful information to overcomes traditional trade barriers and facilitate financial transactions of SMEs, efficiency, effectiveness, superior performance, growth, expansion and new products (Consoli, 2012; Manochehri et al., 2012; Suriyapperuma et al., 2015).

Additionally, strategic capability did not moderate the relationship between market oriented ICT and SMEs performance. This findings implies that even with strategic capability of the owners/managers of the SMEs, the market oriented ICT would have negative effect on SMEs performance.

Theoretically, the findings of the study support RBV, and it implies that ICT resources are a vital requirement for SMEs to achieve better performance. Similarly, it implies that proper utilisation of ICT in the SMEs would lead to the flourishing and better performance of the SMEs. It also suggests that a strategic capability compliment and improve the effect of ICT on the SMEs performance. Therefore, SMEs should align their ICT resources (as explained in RBV) with the strategic capability of the owners/managers of the SMEs in order to achieve a better SMEs performance.

6. Conclusion and Implications

The study complements and improves on previous studies that have been conducted in this field. It provides depth, width, comprehensive and better understanding of the relationship between information and communication technology (ICT) and SMEs performance in the study area. It also provides an

understanding of the moderating role of the strategic capability on the relationship between ICT and SMEs performance. Moreover, the study is among the few studies in Nigeria that have considered the use of PLS-SEM 3.0 in data analysis (i.e. Aminu, 2015; Naala, 2016).

Furthermore, the study would help the owners/managers of SMEs with a guide to understanding and application of ICT resources in their various SMEs to offer solutions to the problems facing SMEs and improve their performance. It would help potential entrepreneurs with a practical and theoretical framework for managing their businesses when established. It would educate Nigerians to see and appreciate the role, value and importance of the role been played by ICT resources in enhancing SMEs performance.

In the same vein, like the claims of many researchers that majority of the research on the strategic capability, ICT and SMEs performance were carried out in developed countries, this work provides empirical evidence from a developing country that is multicultural, multi-ethnic and diverse. It also provide scientific data for the study area that has been grossly underrepresented in published literature. Finally, this study would serve as a reference for future/further studies on strategic capability, ICT and SMEs performance not only in Nigeria but other countries.

7. Recommendations

The study recommends that owners, managers and entrepreneurs should develop high level of strategic capability, usage of general oriented and communication ICT resources as a strategy to enhance SMEs performance. Similarly, government policies ought to target at improving ICT resources and infrastructure in promoting SMEs' performance and sustainability. Furthermore, the government should institute ICT resource centres that would support the SMEs in achieving better performance through the use of ICT.

References

Abouzeedan, A., & Busler, M. (2002). "Information technology (IT) impact on performance of small and medium enterprises (SMEs)",. In *Proceedings of the RENT XVI, Research in Entrepreneurship and Small Business, Barcelona, Spain.*

Adebisi, S. A., Alaneme, G. C., & Ofuani, A. B. (2015). Challenges of Finance and the Performance of Small and Medium Enterprises (SMES) in Lagos State. *Developing Country Studies*, *5*(8), 46–58.

Agwu, E. M., & Murray, P. J. (2015). Empirical Study of Barriers to Electronic Commerce Uptake by SMEs in Developing Economies. *International Journal of Innovation in the Digital Economy*, *6*(2), 1–19. http://doi.org/10.4018/ijide.2015040101

Akomea-bonsu, C., & Sampong, F. (2012). The impact of Information and Communication Technologies (ICT) on Small and Medium Scale Enterprises (SMEs) in the Kumasi. *European Journal of Business and Management*, *4*(20), 152–159.

Al Mamun, A., Subramaniam, P., Binti Che Nawi, N., & Raihani Binti Zainol, N. (2016). Entrepreneurial Competencies and Performance of Informal MicroEnterprises in Malaysia. *Mediterranean Journal of Social Sciences MCSER Publishing*, *7*(3), 20399340. http://doi.org/10.5901/mjss.2016.v7n3p273

Alam, S. S., & Mohammad Noor, M. K. (2009). ICT Adoption in Small and Medium Enterprises: an Empirical Evidence of Service Sectors in Malaysia. *International Journal of Business and Management*, *4*(2), 112–125. http://doi.org/10.5539/ijbm.v4n2p112

Ali, S., Jabeen, U. A., & Nikhitha, M. (2016). Impact of ICTs on agriculture productivity. *European Journal of Business, Economics and Accountancy*, *4*(5), 82–92.

Aminu, I. M. (2015). *Mediating role of access to finance and moderating role of business environment on the relationship between strategic orientation attributes and performance of small and medium enterprises in Nigeria (Doctoral dissertation, Universiti Utara Malaysia).*

Anh, P. C., & Matsui, Y. (2011). Relationship between quality management information and operational performance: internal perspective. *Management Research Review*, *34*(5), 519–540.

Ann Bartel, Ichniowski, C., & Shaw, K. (2007). How Does Information Technology Affect Productivity ? Plant-Level Comparisons of Product Innovation , Process Improvement , and

Worker Skills. *The Quarterly Journal of Economics*, *122*(4), 1721–1758.

Annunziata, D. F., & Isabella, M. (2008). The SMEs Performance by the New Technologies Application: The Case of Olive-Oil in Puglia. *Agricultural Economics Review*, *9*(1), 70–80.

Apulu, I., & O. Ige, E. (2011). Are Nigeria SMEs Effectively Utilizing ICT? *International Journal of Business and Management*, *6*(6), 207–214.

Aquilani, B., Silvestri, C., Ruggieri, A., & Gatti, C. (2017). A systematic literature review on total quality management critical success factors and the identification of new avenues of research. *The TQM Journal*, *29*(1), 84–213.

Arvanitis, S., Loukis, E., & Diamantopoulou, V. (2013). The effect of soft ICT capital on innovation performance of Greek firms. *Journal of Enterprise Information Management*,*26*(6), 679–701.

Ashrafi, R., & Murtaza, M. (2008). Use and Impact of ICT on SMEs in Oman. *Electronic Journal of Information Systems Evaluation*, *11*(3), 125–138. http://doi.org/ISSN 1566-6379

Azam, M. S. (2015). Diffusion of ICT and SME Performance. In E-Services Adoption: Processes by Firms in Developing Nations. *AEmerald Group Publishing Limited*, *23*, 7–290. http://doi.org/10.1108/S1069-096420150000023005

Barney, J. B. (1991). Firm Resources and Sustained Competitive Advantage. *Journal of Management*, *17*(1), 99–120. http://doi.org/10.1177/014920639101700108

Barroso, C., Carri´on, G. C., & Rold´an, J. L. (2010). Applying Maximum Likelihood and PLS on Different Sample Sizes: Studies on SERVQUAL Model and Employee Behavior Model. In *Springer Berlin Heidelberg.* (p. 627).

Bayo-Moriones, A., Billon, M., & Lera-Lopez, F. (2013). Perceived performance effects of ICT in manufacturing SMEs. *Industrial Management & Data Systems*, *113*(1), 117–135.

Bayo-Moriones, A., & Lera-López, F. (2007). A firm-level analysis of determinants of ICT adoption in Spain. *Technovation*, *27*(6–7), 352–366.

Berkowitz, E. N., Kerin, R. A., Hartley, S. W., & Rudelius, W. (2000). *Marketing. Irwin/McGraw Hill*.

Bigliardi, B. (2013). The effect of innovation on financial performance: A research study involving SMEs. *Innovation*, *15*(2), 245–255.

Blackburn, R., & Athayde, R. (2000). Making the connection: the effectiveness of internet training in small businesses. *Education + Training*, *42*(4/5), 289–299.

Brady, M., Saren, M., & Tzokas, N. (2002). Integrating Information Technology into Marketing Practice – The IT Reality of Contemporary Marketing Practice. *Journal of Marketing Management*, *18*(5–6), 555–577. http://doi.org/10.1362/0267257022683703

Buhalis, D. (2004). strategic and tactical use of ICTs in the airline industry. *Information & Management*, *4*(7), 805–825.

Cardona, M., Kretschmer, T., & Strobel, T. (2013). ICT and productivity: Conclusions from the empirical literature. *Information Economics and Policy*, *25*(3), 109–125.

Castel, A. F. G., & Górriz, C. G. (2017). Organizational Studies Family involvement and the impact of information and communication technology on performance. *Academia Revista Latinoamerica de Administacion*, *30*(1), 23–39. http://doi.org/10.1108/ARLA-06-2013-0071

Chege, S. M., Wang, D., & Suntu, S. L. (2019). Information Technology for Development Impact of information technology innovation on firm performance in Kenya Impact of information technology innovation on firm performance. *Information Technology for Development*, *0*(0), 1–30. http://doi.org/10.1080/02681102.2019.1573717

Chin, W. W. (1998). Commentary: Issues and Opinion on Structural Equation Modeling. *MIS Quarterly*, *22*(1), 1. http://doi.org/Editorial

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences. 2nd Lawrence Erlbaum Associates. Hillsdale, NJ*.

Cohen, S., & Kallirroi, G. (2006). e-Commerce Investments from an SME perspective : Costs , Benefits and Processes. *Journal of Information Systems Evaluation*, *9*(2), 45–56.

Connor, T. (2002). The resource-based view of strategy and its value to practising managers. *Strategic Change*, *11*(6), 307–316. http://doi.org/10.1002/jsc.593

Consoli, D. (2012). Literature Analysis on Determinant Factors and the Impact of ICT in SMEs. *Procedia - Social and Behavioral Sciences*, *62*(Figure 1), 93–97.

De Stefano, T., Kneller, R., & Timmis, J. (2016). *Information Communication Technologies and Firm Performance: Evidence for UK Firms*. Retrieved from

Dedrick, J., Gurbaxani, V., & Kraemer, K. L. (2003). Information Technology and Economic Performance : A Critical Review of the Empirical Evidence. *ACM Computing Surveys (CSUR*, *35*(1), 1–28.

Devaraj, S., & Kohli, R. (2003). Performance Impacts of Information Technology: Is Actual Usage the Missing Link? *Management Science*, *49*(3), 273–289.

Dibrell, C. C., Davis, P. S. & Craig, J. B. L. (2008). Fueling innovation through informationtechnology in SMEs. *Journal of Small Business Management,46*(2), 203– 218.

Eisenhardt, K. M., & Martin, J. A. (2000). Dynamic Capabilities: What Are They? *Strategic Management Journal*, *21*(10–11), 1105–1121. http://doi.org/10.1002/smj

Elliott, A. C., & Woodward, W. A. (2007). *Statistical analysis quick reference guidebook: With SPSS examples: Sage*.

Esselaar, S., Stork, C., Ndiwalana, A., & Deen-Swarray, M. (2006). ICT usage and its impact on profitability of SMEs in 13 African Countries. *2006 International Conference on Information and Communication Technology and Development, ICTD2006*, *4*(1), 40–47.

Femi Egbesola. (2015). Challenges of SMEs operation in Nigeria. *Daily Trust Newspaper, Nigeria*.

Fornell, C., & Larcker, D. (1981). evalusting structural equation models with unobservable variable and measurment error. *Journal Marketing Research*, 39–50.

Geisser, S. (1974). A Predictive Approach to the Random Effect Model. *Biometrika*, *61*(1), 101–107.

Ghobakhloo, M., Arias-Aranda, D., & Benitez-Amado, J. (2011). Adoption of e-commerce applications in SMEs. *Industrial Management & Data Systems*, *Vol. 111*(8).

Gibbs, J., & Kraemer, K. (2004). A cross-country investigation of the determinants of scope of e-commerce use: An institutional approach. *Electronic Markets*, *14*(2), 124–137.

Goldman, E., & Scott, A. R. (2016). Competency models for assessing strategic thinking. *Journal of Strategic Management*, *9*(3). http://doi.org/10.1108/JSMA-07-2015-0059

Grant, R. M. (1991). The Resource-Based Theory of Competitive Advantage: Implications for Strategy Formulation. *California Management Review*.

Grant, R. M. (1996). Toward a Knowledge-Based Theory of the Firm. *Strategic Management Journal*, *17*(May), 109–122.

Gunnarsson, G., Mellander, E., & Savvidou, E. (2004). *Human capital is the key to the IT productivity paradox* (No. No. 2004:13).

Hagsten, E., & Sabadash, A. (2017). A neglected input to production: the role of ICT-schooled employees in firm performance. *International Journal of Manpower*, *38*(3), 373–391.

Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2017). *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)*. *SAGE Publications, Inc* (Second Edi). Melbourne.

Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2017). *A Primer on Partial Least Squares Structural Equation Modelling (PLS-SEM)*. 2nd Edition, SAGE Publishers.

Hair Jr, J. F., William, C., Babin, B. J., & Anderson, R. E. (2014). *Multivariate Data Analysis Joseph F . Hair Jr . William C . Black Seventh Edition*. Pearson Education Limited.

Harker, D., & Jeanette Van Akkeren. (2002). Debra Harker and Jeanette Van Akkeren. *Qualitative Market Research: An International Journal*, *5*(3), 1352–2752.

Hitt, L. M., & Brynjolfsson, E. (1996). Business Business Profitability , Profitability , Information Surplus : Three. *MIS Quarterly*, *20*(2), 121–142.

Irene, B. (2017). Women entrepreneurship in South Africa : Understanding the role of competencies in business success. *Southern African Journal of Entrepreneurship and Small Business Management*, *9*(1), 1–9.

Jorgenson, D. W., & Vu, K. (2005). Information

technology and the world economy. *The Network Society, from Knowledge to Policy*, 71–124.

Keller, J., & von der Gracht, H. A. (2014). ICT and the Foresight Infrastructure of the Future. *World Futures Review*, *6*(1), 40–47. http://doi.org/10.1177/1946756714528881

Kollberg, M., & Dreyer, H. (2006). Exploring the impact of ICT on integration in supply chain control: A research model. *Proceedings of the 2006 EurOMA Conference in …*, 285–294.

Krejcie, R. V, & Morgan, D. W. (1970). Determining Sample Size for Research Activities Robert. *Educational and Psychological Measurement*, *38*(1), 607–610.

Kushwaha, G. S. (2011). Competitive Advantage Through Information And Communication Technology (ICT) Enabled Supply. *Journal of Enterprise Information Management*, *1*(2), pp.608-624. http://doi.org/http://dx.doi.org/10.1108/17410390610708490

Lans, T., Bergevoet, R., Mulder, M., & van Woerkum, C. (2005). Identification and measurement of competences of entrepreneurs in agribusiness. In *Selected papers from the 8th Ph.D. Conference on Business Economics, Management and Organization Science* (pp. 81–95). Retrieved from http://library.wur.nl/WebQuery/wurpubs/343935

Liu, T. K., Chen, J. R., Huang, C. J., & Yang, C. H. (2014). Revisiting the productivity paradox: A semiparametric smooth coefficient approach based on evidence from Taiwan. *Technological Forecasting and Social Change*, *81*(1), 300–308.

Lucchetti, R., & Sterlacchini, A. (2004). The adoption of ICT among SMEs: Evidence from an Italian survey. *Small Business Economics*, *23*(2), 151–168. http://doi.org/10.1023/B:SBEJ.0000027667.55821.53

Mamun, A. Al, Fazal, S. A., & Zainol, N. R. (2019). Economic Vulnerability , Entrepreneurial Competencies , and Performance of Informal. *Journal of Poverty*, *0*(0), 1–22. http://doi.org/10.1080/10875549.2019.1587676

Man, T. W. Y. (2001). *Entrepreneurial Competencies and the Performance of Small and Medium Enterprises in the Hong Kong Services Sector*.

Man, T. W. Y., & Lau, T. (2000). Entrepreneurial Competencies of SMEs Owner/Managers in the Hong Kong Services Sector: A Qualitative Analysis. *Journal of Enterprising Culture*, *8*(3), 235–254.

Manochehri, N.-N., Al-Esmail, R. A., & Ashrafi, R. (2012). Examining the impact of information and communication technologies (ICT) on enterprises practices: A preliminary perspective from Qatar. *The Electronic Journal of Information Systems in Developing Countries*, *51*(3), 1–16. http://doi.org/.

Mary, O. E., Leonard, U. E. I., & Onwuzuligbo. (2015). Information and Communication Technology and the Performance of Selected Small and Medium Enterprises in Onitsha Metropolis. *International Journal of Development Research*, *5*(11), 6057–6061.

Melchioly, S. R., & Saebo, O. (2010). ICTs and Development- Nature of Mobile Phones usage for SMEs Economic Development - An Exploratory Study in Morogoro, Tanzania. *Technical Commission 9 – Relationship Between Computers and Society. Workshop at Makerere University, Uganda. 22-23 March 2010*, (March), 1–13.

Melville, N., Kraemer, K., & Gurbaxani, V. (2004). Technology Information An Performance : Organizational Integrative Model of IT Business. *MIS Quarterly*, *28*(2), 283–322.

Memona, M. A., Cheah, J.-H., Ramayah, T., Ting, H., Chuah, F., & Cham, T. H. (2019). Moderation Analysis : Issues and Guidelines. *Journal of Applied Structural Equation Modeling*, *3*(1), 1–12.

Michaels, G., Natraj, A., & Has, J. V. R. (2014). Has ICT polarized skill demand? Evidence from eleven countries over 25 years Article. *The Review of Economics and Statistics*, *96*(1), 60–77. http://doi.org/10.1162/REST

Minimol, M. C. (2017). Linkage between entrepreneurial competency and social entrepreneurship: evidences from SMEs in Kerala. *Asian Social Science*, *13*(1), 31–42.

Naala, M. N. I. (2016). *Moderating and Mediating Roles of Human Capital and Competitive Advantage on Entrepreneurial Orientation, Social Network, and Performance of SMEs in Nigeria.* A PhD Thesis Submitted to Universiti Utara Malysia.

Ngwa, W., Ngoma, T., & Napitupulu, D. (2018). Analysis of user readiness toward ICT usage at small medium enterprise in south tangerang Analysis of user readiness toward ICT usage at small medium enterprise in south tangerang.

Okundaye, K., Fan, S. K., & Dwyer, R. J. (2019). Impact of information and communication technology in Nigerian small- to medium-sized enterprises. *Journal of Economics, Finance and Administrative Science*. http://doi.org/10.1108/JEFAS-08-2018-0086

Penrose, E. (1959). *The theory of the growth of the firm. Oxford: Oxford University Press.*

Pokharel, S. (2005). Perception on information and communication technology perspectives in logistics A study of transportation and warehouses sectors in Singapore. *The Journal of Enterprise Information Management*, *8*(2), 136–149. http://doi.org/10.1108/IJBM-07-2013-0069

Rahayu, R., & Day, J. (2017). E-commerce adoption by SMEs in developing countries : evidence from Indonesia. *Eurasian Business Review*, *7*(1), 25–41.

Rahman, S. A., Amran, A., Ahmad, N. H., & Taghizadeh, S. K. (2014). Prospective entrepreneurial competencies to ensure subjective wellbeing of the entrepreneurs at the base of pyramid",. In *Proceedings Book of ICBSSS, Malaysia Handbook on Business Strategy and Social Sciences, PAK Publishing Group* (p. 56–64.).

Reedy, J., & Schullo, S. (2004). *Electronic marketing, integrating electronic resources into marketing process, Ohio: Thomson.*

Santos, J. B., & Brito, L. A. L. (2012). Toward a subjective measurement model for firm performance. *BAR - Brazilian Administration Review*, *9*(SPL. ISS), 95–117.

Schware, R. (2003). Information and Communications Technology (ICT) Agencies-Functions,structures, and best operational practices. *Emerald Research*, 3–7. Retrieved from http://www.emeraldinsight.com/researchregister

Sekaran, U. (2003). *Research methods for business: A skill building approach (4th ed.). New York: John Wiley & Sons Inc. Sekaran,.*

Shiels, H., McIvor, R., & O'Reilly, D. (2003). Understanding the implications of ICT adoption: insights from SMEs. *Logistics Information Management*, *16*(5), 312–326.

Smith, P. R., & Chaffey, D. (2005). *E-Marketing excellence: at the heart of e- Business, Oxford, UK, Butterworth Heinemann.*

Stephen, I. A., Ayodele, O. M., Oluremi, O. A., & Ifeoma, N. C. (2017). "Enhancing the performance of agro-based SMES: the role of entrepreneurship competencies",. *Covenant Journal of Entrepreneurship*, *1*(1), 44–51.

Stone, M. (1974). Cross-Validatory Choice and Assessment of Statistical Predictions. *Journal of the Royal Statistical Society. Series B (Methodological)*, *34*(2), 187–220.

Strauss, J., & Frost, R. (2001). *e-Marketing, NJ, USA, Prentice Hall*.

Subba Rao, S., Metts, G., & Mora Monge, C. A. (2003). Electronic commerce development in small and medium sized enterprises. *Business Process Management Journal*, *9*(1), 11–32. http://doi.org/10.1108/14637150310461378

Suriyapperuma, H. P., Mohd, Shukri, A. Y., Ali, K., & Premarathne, S. P. (2015). The Impact of Internet Adoption on SME performance in Sri Lanka : Development of a Conceptual Framework. *International Journal of Arts and Commerce*, *4*(1), 46–58.

Tamyez, P. F., Ishak, N., Ali, J., & Omar, S. (2017). Entrepreneurial competencies and networks in the construction industry",. *International Journal of Applied Engineering Research*, *12*(23), 13374–13380.

Tarutė, A., & Gatautis, R. (2014a). ICT Impact on SMEs Performance. *Procedia - Social and Behavioral Sciences*, *110*, 1218–1225. http://doi.org/10.1016/j.sbspro.2013.12.968

Tarutė, A., & Gatautis, R. (2014b). ICT Impact on SMEs Performance. *Procedia - Social and Behavioral Sciences*, *110*, 1218–1225. http://doi.org/10.1016/j.sbspro.2013.12.968

Taylor, M., & Murphy, A. (2004). SMEs and e-business. *Journal of Small Business and Enterprise Development*, *11*(3), 280–289. http://doi.org/10.1108/14626000410551546

Tehseen, S., Ahmed, F. U., Qureshi, Z. H., Uddin, M. J., & T., R. (2019). Entrepreneurial competencies and SMEs ' growth : the mediating role of network competence. *Asia-Pacific*

Journal of Business Administration. http://doi.org/10.1108/APJBA-05-2018-0084

Tehseen, S., Ahmed, F. U., Qureshi, Z. H., Uddin, M. J., Thurasamy, & Ramayah. (2019). Entrepreneurial competencies and SMEs' growth: the mediating role of network competence. *Asia-Pacific Journal of Business Administration*, *11*(1), 2–29.

Tehseen, S., Qureshi, Z. H., Johara, F., & Ramayah, T. (2020). Assessing Dimensions of Entrepreneurial Competencies: A Type II (Reflective-Formative) Measurement Approach Using PLS-SEM. *Journal of Sustainability Science and Management*, *15*(2).

Tehseen, S., Qureshi, Z. H., & Ramayah, T. (2018). Impact of Network Competence on Firm'S Performances Among Chinese and Indian Entrepreneurs: a Multigroup Analysis. *International Journal of Entrepreneurship*, *22*(2), 1–14.

Tehseen, S., & Ramayah, T. (2015). Entrepreneurial Competencies and SMEs Business Success: The Contingent Role of External Integration. *Mediterranean Journal of Social Sciences*, *6*(1), 50–61. http://doi.org/10.5901/mjss.2015.v6n1p50

Vagias, W. (2006). Likert-type scale response anchors. *Clemson International Institute for Tourism and Research Development, Department of Parks, Recreation and Tourism Managment.*, 3–4. http://doi.org/10.1525/auk.2008.125.1.225

Wang, G., & Miao, C. F. (2015). Effects of sales force market orientation on creativity, innovation implementation, and sales performance. *Journal of Business Research*, *68*(11), 2374–2382. http://doi.org/10.1016/j.jbusres.2015.03.041

Xu, K., Huang, K. F., & Xu, E. (2014). Giving fish or teaching to fish? An empirical study of the effects of government research and development policies. *R and D Management*, *44*(5), 484–497. http://doi.org/10.1111/radm.12087

Yunis, M., El-Kassar, A.-N., & Abbas Tarhini. (2017). "Impact of ICT-based innovations on organizational performance: The role of corporate entrepreneurship. *Journal of Enterprise Information Management*, *30*(1), 122–141.

Yunis, M. M., Kassar, A.-N., & Tarhini, A. (2017). Impact of ICT-based Innovations on Organizational Performance: The Role of Corporate Entrepreneurship. *Journal of Enterprise Information Management*, *30*(1), 122–141. http://doi.org/10.1108/JEIM

Yusuf, A. A. (2013). *Impact of ict on smes — Case Rwanda*. Turku University Of Applied Sciences.

Zafar, A., & Mustafa, S. (2017). SMEs and its Role in Economic and Socio-Economic Development of Pakistan. *International Journal of Academic Research in Economics and Management Sciences*, *6*(4), 1–16. http://doi.org/10.6007/IJARAFMS/v7-i4/3484

Zhang, X., Donk, D. P. Van, & Vaart, T. van der. (2016). The different impact of inter-organizational and intra-organizational ICT on supply chain performance. *International Journal of Operations & Production Management*, *36*(7), 803–824.