# CHAPTER ONE

# INTRODUCTION

## 1.1 Background of the Study

Strategic orientations are commonly recognized as valuable resources that facilitate the achievement of competitive advantage and greater organizational performance (Slater & Narver 2000; Voss & Voss 2000; Hult & Ketchen, 2001; Subramanian & Gopalakrishna, 2001; Ruokonen & Saarenketo, 2009). One of the most important pillars that have major implications for an organization's structure, activities, investments, relations with the market and performance is strategy (Valos & Bednall, 2010). Globally, in all organizations; strategy is the most important managerial tool for performance. A strategy is the fundamental, integrated, externally oriented concept of how a firm will achieve its objectives. Having a strategy helps organizations find solutions to problems, create new capabilities and improve business performance (Sacker & Palit, 2015) by allowing organizations and the managers to gather specific resources, recognize opportunities for providing valued products and services and to convey those products and services for higher profits (Al-Ansaari, Bederr & Chen, 2015). Strategy refers to the intended path that gives the outlines for decisions and activities of an organization and is focused on the alignment of the organizations business system and its business environment, in such a way that the business system has an additional value to the business environment resulting in (sustained) superior business performance in a particular business (Reulink, 2012).

Obeidat (2016) stated that adopting the best strategy requires organizations to coordinate their approaches in establishing industry positions and/or by relying on its resources, competences, and capabilities in an effort to achieve a fit with their internal and external environments and in turn achieve a sustained competitive advantage and improved business efficiency. In order to achieve these goals, organizations need to focus on their strategic orientation since it

guides the direction that a firm intends to pursue in order to monitor its activities for better business performance (Gao, Zhou & Yim, 2007).

To achieve superior performance, organizations must take strategic orientations into account when developing strategies (Slater, Olson & Hult, 2006). Strategic orientation refers to the broad outlines for the organizations strategy while leaving the details of strategy content and strategy implementation to be completed (Slater, Olson & Hult, 2006). Strategic orientation of the firm reflects its operational, marketing and entrepreneurial posture. By doing so, a firm achieves its goals in markets by taking risks, investing in innovation, becoming proactive and developing future-oriented foresight (Kumar, Boesso, Favotto & Menini, 2012). Organizations have different strategic orientations that vary strongly with regard to internal and external conditions. Based on the pioneering work on strategic orientation done by Narver and Slater (1990) and Gatingnon & Xuereb (1997) define Strategic orientation as the strategic directions implemented by a firm to create the proper behaviours for the continuous superior performance of the business.

Strategic orientations are cornerstones of several research streams in the economic sciences, such as entrepreneurship, strategic management and marketing (Mika & Sami, 2007). Among others, the concepts of market orientation, customer orientation, competitor orientation, resource orientation, technology orientation, learning orientation, product orientation, productivity orientation, production orientation, quality orientation, cost orientation, innovation orientation, entrepreneurial orientation, employee orientation, brand orientation and interaction have been under extensive debate for more than a decade as academics have put plenty of effort into explaining the innovativeness, sustainable competitive advantage, and long-term performance of companies (Voss & Voss 2000). The existing literature refers to an entrepreneurial orientation in terms of the company's willingness and ability to engage in risk-taking and proactive behavior, as well as innovativeness in its competitiveness and on markets (Covin & Slevin, 1991). Entrepreneurial orientation is defined as a five -

dimensional concept, which includes innovativeness, proactiveness, risk-taking, competitive aggressiveness and autonomy (Covin & Slevin, 1986, 1989; Lumpkin & Dess, 1996; Miller, 1983). A learning orientation, on the other hand, stresses the company's questioning of existing beliefs about behaviour and practices of creating value (Argyris & Scho¨n, 1978). Finally, market orientation refers to attitudes and values concerning gathering customer and competitor intelligence and using it in decision-making to deliver the created value (Kohli & Jaworski, 1990; Narver & Slater, 1990).

On the other hand, entrepreneurship development is described by United Nations Development Programmes (UNDP, 2010) as the process of enhancing entrepreneurial skills and knowledge through structured training and institution-building programmes. To this end entrepreneurship development concentrates more on growth potential and innovation (Osemeke, 2012). Entrepreneurial development activities contribute to the continued existence and growth of business organizations. Entrepreneurship is acknowledged as a key and distinguishing feature of successful business organizations today. Entrepreneurship scholars have posited that corporate entrepreneurial development behaviour is needed for achieving increased profitability, higher market share, strategic renewals, innovativeness and for achieving a sustainable competitive edge over competitors (Kuratko, Ireland & Hornsby, 2004). Business organizations need to display consistently creative and innovative behaviours for them to grow and succeed. In the light of resource-based view (RBV) theory, entrepreneurial development is regarded as an intangible organizational resource that gives an organization a competitive advantage, which, in turn, contributes to superior performance (Barney, 1991).

Performance comprises the actual output or results of an organization as measured against its intended output. Performance involves the recurring activities to establish organizational goals, monitor progress towards the goals and make adjustments to achieve those goals more effectively and efficiently (Richard, 2009). Performance is an abstract concept and it is

difficult for so many organizations to directly measure. Instead of measuring performance directly the organization select indicators such as quality, growth, productivity, job satisfaction, goal consensus, managerial interpersonal skills. Daft (2010) see performance as the ability of an organization to utilize its resources (e.g knowledge, people and raw materials) to achieve organizational goals in effective and efficient way. To date, in order to measure organizational performance, it can be seen from two perspectives, either financial or non-financial performance (Venkatraman & Ramanujam, 1986). Although, measurement of financial performance of the organization has long been recognized, but it is insufficient to measure the overall performance of the organization, so that non-financial measurements will be worth enough to be incorporated (Murphy, Trailer & Hill, 1996).

The globe economy is in the center of a profound transformation, driven by globalization and supported by the rapid development of Information and Communication Technologies that accelerates the transmission and use of information and knowledge. This powerful combination of forces is changing the way we live, and redefining the way companies or firms do business in every economic sector. In this twenty-first century where business organizations compete globally, there is need for them to behave entrepreneurially in order to flourish and have competitive advantage over competitors in the ever-dynamic and highly competitive business environments (Kuratko, Morris & Covin, 2011; Kuratko, 2009). Generally, business environments have become highly hostile, unpredictable, and heterogenic (Kuratko, Ireland & Hornsby, 2004); business environment poses a lot of challenges to business organizations and managers. Business environment have become even more challenging considering the developments in the technological World today, particularly advancements in ICT. Advancements in technology have expanded the scope of competition among business organizations beyond their immediate territories. In order to cope with these challenges, business organizations need to become entrepreneurial and innovative in their

activities, processes and practices. Thus, it is either they behave entrepreneurially or they become outmoded (Kuratko, 2009).

In relating strategic orientations and entrepreneurial development, unfortunately, much of the strategic orientation literature is prescriptive and anecdotal in nature, with no linkages to entrepreneurial development. However, empirical studies have established link between strategic orientation and organizational performance. To this end, market orientation is frequently studied and almost universally recognized as one of the main contributors to the success and performance of a firm (Hunt & Lambe 2000; Grinstein 2008). Other orientations such as entrepreneurial, learning and technology have also received major scholarly attention (Baker & Sinkula 1999; Covin & Slevin 1989; Gatignon & Xuereb 1997; Hult, Hurley & Knight 2004; Sinkula, Baker & Noordewier 1997; Wiklund 1999; Wiklund and Shepherd 2005), and positive connections have been found between orientations and organizational performance. A majority of the studies have investigated the direct link between a specific orientation and performance (Cano et al. 2004; Wiklund 1999). Prior studies also have found that learning orientation enhances performance (Baker & Sinkula 1999), and mediates the relationship between entrepreneurial orientation and performance (Wang, 2008). Yet, studies generally concentrate on the role of a particular orientation, and only a limited number of studies analyze the interactions between strategic orientations and entrepreneurial development. This study attempts to address this void by investigating the effect of strategic orientation and entrepreneurial development on performance of Information and Communication Technology firms in North-Central, Nigeria.

## 1.2 Statement of the Problem

Business environment has become highly competitive, dynamic and heterogenic. As a result, business organizations are expected to be entrepreneurially inclined and strategically oriented (Otache & Mahmood, 2015). Notwithstanding the developments in Information and Communication Technology sector over the years and their supposed influence on the

production process and other socio-economic activities in Nigeria, their strategic orientation is still at low ebb. This assertion is evident with increased customer complaint of poor products and customer services, in terms of wrong calls (call divert), poor voice/video quality, drop calls, high call rate, network blockage or congestion, length of coverage of the service providers poor implementation of some their programmes and service quality problems (Alamutu, Hotepo, Oyeobu & Nwatulegwu, 2012 ). Piqued by these falling standards of product and quality of services, the Nigerian Telecommunications Commission (NCC) had to slam a whopping sum of one billion and seventy million (#1.17) billion fines on all four (4) Global System Mobile operators (Alamutu, Hotepo, Oyeobu & Nwatulegwu, 2012). More so, Sarif and Ismail (2006) reveal that the ICT firms' lacks core ICT product offerings as they appear to be engaged in trading rather than ICT product development. ICT firms did not develop the technology themselves but purchased (import) it from overseas and then did some customization or localization before reselling it to their customers. Igel and Islam (2001) point out that vulnerability, market uncertainty, rapid technological change and development, and lack of resources, especially human resources, are the factors that constrain the development of these ICT firms.

The plight common to ICT operators in Nigeria are all characterized by inefficient communication networks, poor services and lack of constant electricity and/or power supply from the National grid. The tariff is high for telecom and broadband. There is no known distinction between a carrier operator and a last mile service provider. Consequently the landscape is constantly being defaced, fibers are constantly being cut and service disruption come a daily occurrence coupled with lack of adequate security of facilities of operators. Lack of adequate research studies, instability and sustainability issues in government policy. The high costs of right of way resulting in the high cost of leasing transmission infrastructure; long delays in the processing of permits; multiple taxation at Federal, State and Local Government levels and having to deal with multiple regulatory bodies; damage to existing

fiber infrastructure as a result of cable theft, road works and other operations and the lack of reliable, clean stable grid electricity supply (Presidential Committee on Broadband, 2012).

Despite decades of research conducted in the different streams of orientation literature, only a limited number of studies analyze the interactions between strategic orientations and performance of companies; or attempt to combine the different viewpoints, thus, little is known about the interrelationships between different dimensions of strategic orientation (market orientation, technology orientation, learning orientation, resources orientation and entrepreneurial orientation) on entrepreneurial development especially the ICT firms sector in Nigeria which has still remained untapped in literature. However, most of these studies in the Nigerian context have not been robust in terms of variables used. Majority of the studies in Nigeria did not decompose strategic orientation variables and whereas those that did only concentrated on entrepreneurial orientation and marketing orientation of strategic orientation dimension (Osuagwu, 2006; Otache & Mahmood, 2015; Ogbonna & Ogwo, 2013; Shehu and Mahmood, 2014; Abiodun & Ibidunni, 2014; Otache & Mahmood, 2015) but studies actually incorporating the technology, learning and entrepreneurial orientation are few in the literature (Aloulou & Fayolle 2005; Kaya & Seyrek 2005; Li 2005). However, only one study (Zhou, Yim & Tse, 2005) was found to investigate four strategic orientations construct simultaneously, again focusing on the differential effects of different orientations rather than attempts to combine the views.

Hence, since previous studies in Nigeria have not holistically examined the different strategic orientation dimensions and entrepreneurial development, thus this present study contributes to the literature by adopting a decompositional approach to dissect strategic orientation's relationship with entrepreneurial development outcomes. Therefore, the study empirically investigate the effects of different strategic orientations dimensions (market orientation, technology orientation, learning orientation, resources orientation, and entrepreneurial

orientation) on entrepreneurial development (competitive advantage, product innovation, service quality and competitive advantage) of ICT firms in North-Central, Nigeria.

## 1.3 Objectives of the Study

The overall objective of this study is to examine the effect of strategic orientation and entrepreneurial development on the performance of Information and Communication Technology firms in North-Central, Nigeria. The study specifically seeks to:

i. Determine the extent to which market orientation affect competitive advantage of Information and Communication Technology firms in North-Central, Nigeria.
ii. Examine the extent to which the technology orientation affects product innovation of Information and Communication Technology firms in North-Central, Nigeria.
iii. Ascertain the extent to which resource orientation affect competitive advantage of Information and Communication Technology firms in North-Central, Nigeria.
iv. Examine the extent to which learning orientation affect service quality of Information and Communication Technology firms in North-Central, Nigeria.
v. Find out the extent to which the entrepreneurial orientation affect competitive advantage of Information and Communication Technology firms in North-Central, Nigeria

## 1.4 Research Questions

In line with the research objectives, the following research questions are raised to guide the study;

i. Does market orientation affect competitive advantage of Information and Communication Technology firms in North-Central Nigeria?
ii. Does technology orientation affect product innovation of Information and Communication Technology firms in North-Central Nigeria?
iii. Does resource orientation affect competitive advantage of Information and Communication Technology firms in North-Central Nigeria?

iv. Does learning orientation affect service quality of Information and Communication Technology firms in North-Central Nigeria?

v. Does entrepreneurial orientation affect competitive advantage of Information and Communication Technology firms in North-Central Nigeria?

## 1.5 Research Hypotheses

**$H_{01}$:** There is no significant relationship between market orientation and competitive advantage of Information and Communication Technology firms in North - Central, Nigeria.

**$H_{02}$:** Technology orientation does not significantly influence product innovation of Information and Communication Technology firms in North-Central, Nigeria

**$H_{03}$:** There is no significant relationship between resource orientation and competitive advantage of Information and Communication Technology firms in North-Central, Nigeria.

**$H_{04}$:** There is no significant relationship between learning orientation and service quality of Information and Communication Technology firms in North-Central, Nigeria.

**$H_{05}$:** There is no significant relationship between entrepreneurial orientation and competitive advantage of Information and Communication Technology firms in North-Central, Nigeria.

## 1.6 Significance of the Study

The findings of the study will be of great significance to the strategic orientations literature by reflecting on the internal boundary factors of strategic orientations and their influence on entrepreneurial development and growth-based performance of Information and Communication Technology firms in Nigeria. Taking a configurationally perspective facilitates theoretical advancement as well as practical implications through a better understanding of which strategic orientations, ICT (high-technology) firms should pursue in order to achieve competitive advantages leading to superior growth-based performance and entrepreneurial development of the Information and Communication Technology firms in the North-Central, Nigeria.

The study will make senior managers and organizational members more alert to new strategic opportunities and threatening development. It will help organizations to carry out regular strategic orientation so as to improve on risks and uncertainties and therefore contribute to organization success and/or development.

Finally, in the area of academics, the significance of this research will arise from the following ways: It will contribute t the enrichment of the literature on strategic orientation and entrepreneurial development. It will throw more light to students, scholars and academics on the relationship between strategic orientation and entrepreneurial development on the performance of Information and Communication Technology firms. The research findings and recommendations will also form a base that will be rallied upon by other researchers who may wish to make further inquiries into the subject matter.

## 1.7 Scope of the Study

This research centre basically is on effect of strategic orientation and entrepreneurial development on the performance of Information and Communication Technology firms in North-Central, Nigeria. The geographical spread is limited to Information and Communication Technology firms operational in the North-Central region of Nigeria. As a result of the nature of the study and spread of Information and Communication Technology firms in Nigeria, the researcher specifically randomly selects twenty five (25) ICT firms operational in Federal Capital Territory (FCT) Abuja, Kogi State, Benue State, Nassarawa State, Niger State and Plateau State respectively. The choice of the study area was largely influenced by cost of survey, time, logistic problems and accessibility of the ICT firms. The ICT firms include: Multinational Mobile Telecommunication (MTN), Globalcom Limited (GLO) Google Nigeria, MainOne, Huawei Technologies, Interswitch Limited, Microsoft, Computer Warehouse Group, Airtel Nigeria, Zinox Technologies Limited, Omatek, DataFlex, IBM Nigeria, Chams Plc, Cloudware Technologies, DHL Express Nigeria, DAAR Communications (AIT), Oracle Nigeria, Galaxy Backbone, Nigerian Communications

Satellite Limited (NIGCOMSAT), Grace FM 95.5, Joy FM 96.5, Panet Technologies Ltd, Xttech Global Services and United Parcel Services Nigeria. (See Appendix II for the list of ICT firms).

The study uses two distinct concepts viz a viz: strategic orientation and entrepreneurial development. However, the study utilizes five (5) strategic orientation variables (market orientation, technology orientation, resource orientation, learning orientation and entrepreneurial orientation) for analysis despite the availability of an array of them. Entrepreneurial development variables are used in this study (i.e. competitive advantage, product innovation, market share, service quality and competitive advantage).

## 1.8 Limitations of the Study

The researcher encountered the following limitations in the course of the study. The main limitation this study stems from the use of research questionnaire to collect data. Some of the respondents were skeptical in giving out information to the researcher on the grounds of hesitation and confidentiality of information. Some of the respondents were unwilling to fill the questionnaire. Some questionnaires were not used for analysis because of inappropriate filling. The failure of the firms' senior managers not to return the instrument constituted a big challenge.

The Ministry of Education, Science and Technology and other Government agencies with the mandate of ICT regulation and management of the selected States in North-central, Nigeria did not have full knowledge and/or have detailed information on functional ICT firms in their respective States. This situation was manifested in almost all States. Nevertheless, through perseverance and help of some of the staff of ICT directorate and agencies in the selected States made the researcher to have access to the list of functional ICT firms.

The study was only limited to ICT firms in North-Central, Nigeria. This would affect its generalizability to ICT firms in other parts of the Country. On the other hand, the study is a

step in the right direction towards the panacea of difficulties comforting the performance and development of ICT firms in North-Central, Nigeria.

# CHAPTER TWO

# REVIEW OF RELATED LITERATURE

## 2.1 Introduction

The study reviewed the following concepts which include Strategic orientation, Market orientation, technology orientation, resource orientation, learning orientation, entrepreneurial orientation, entrepreneurial development, market share, product innovation, competitive advantage, service quality, performance, theoretical framework, empirical review, gap in knowledge and summary of reviewed literature.

### 2.1.1 Strategic Orientation

Strategic orientation has attracted widespread attention from management, marketing and entrepreneurship scholars World over, yet there is no universally accepted definition of strategic orientation of a firm (Obeidat, 2016). The very nature of an orientation is a matter of debate, and different streams of literature have developed diverse concepts. A dictionary definition of the word 'orientation' refers to general or lasting direction of thought, inclination or interest (Merriam-Webster, 2016). Academic literature has defined the strategic orientation of the business in various ways.

Strategic orientation refers to the manner in which a firm adapts to its external environment (Avci, Madanoghu & Okumus, 2011). On the other hand, it refers to the pattern of responses that an organization makes to its operating environment in an effort to enhance performance and gain competitive advantage (Kumar, Boesso, Favotto & Menini, 2012). Strategic orientation refers to the broad outlines for the organizations strategy while leaving the details of strategy content and strategy implementation to be completed (Slater, Olson & Hult, 2006). Organizations have different strategic orientations that vary strongly with regard to internal and external conditions. This paper adopts a view Slater, Olson and Hult (2006) in line with Gatignon and Xuereb (1997) and Hakala, (2011) in which strategic orientations are viewed as principles that direct and influence the activities of a firm and generate the

behaviours intended to ensure the viability and performance of the firm. These principles can also be actively ‘used’ to steer the activities of the organization. Some researchers or scholars see orientation as a representation of an organization’s adaptive culture which steers its interaction with its environment (Noble, Sinha & Kumar, 2002). A firm’s strategic orientation is defined as potential element for the management to acquire knowledge about new product development with determination to improve abilities of new product development teams to launch an efficient new product (Subin & Heiman, 2016).

Strategic orientation is the planned direction implemented by a firm to create the proper behaviours for the continuous superior performance and development of the business. Strategic orientation is defined as the strategic directions implemented by a firm to create the proper behaviours for the continuous superior performance of the business (Narver & Slater, 1990; Gatignon & Xuereb, 1997; Hakala, 2011; Menguc & Auh, 2006). Previous studies examining strategic orientations have pointed specifically to the behaviours associated with the organization-wide generation, dissemination and use of market intelligence as being the key ingredients of a strategic orientation (Baker & Sinkula, 1999; Kohli & Jaworski, 1990; Narver & Slater, 1990; Sinkula, 1994). An important aspect of a strategic orientation is the creation of shared values and behaviours throughout the entire organization. When strategic orientation extends to all levels of an organization, it becomes an organizational culture. Other scholars see strategic orientation as an aspect of organizational culture (Narver & Slater, 1990; Sinkula, 1994). Organizational culture is a form of intangible resources and the deployment of those resources, i.e. orientations, will have different impacts on the organization. Strategic orientation focuses resources to achieve desired outcomes (Grawe, Chen & Daugherty, 2009). This is supported by Balodi (2014) who stated that strategic orientation manifests in the firm’s culture and serves as antecedents to organizational practices and decisions associated with resources allocation and pursuing opportunities.

Organizational culture is defined as the pattern of shared values and beliefs that provide norms for behaviour within an organization (Deshpande & Webster, 1989). As suggested by Day (1994), culture can unify an organization's capabilities into a "cohesive whole". One of the most important factors that ultimately contribute towards the success of new product development is firm's strategic orientation (Mu, Thomas, & Peng, 2016). It reflects firms core strategic decisions on how to conduct certain strategic planning to conduct a business; in short it is the philosophy of the firm to perform certain tasks in order to make the product successful (Covin & Slevin, 2006).

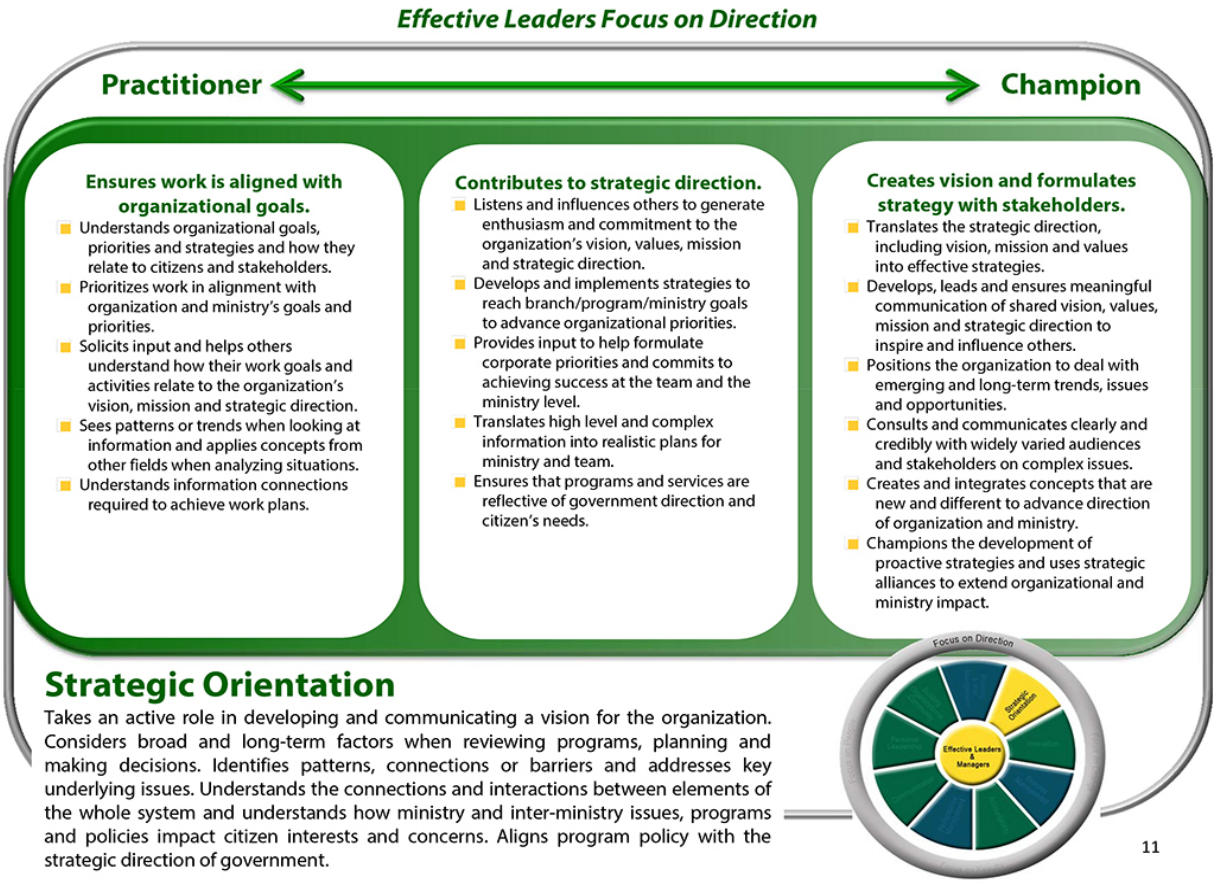
Gatignon & Xuereb (1997) defined strategic orientation as the strategic directions that are planned, organized and implemented by the firm to endorse proper measures for the continuous performance and success of new product development. According to Sriram, (1996) strategic orientation is how an organization changes or adapts various aspects of its surroundings for favourable environment.

Strategic orientation is considered as a critical component for not only profitability but the ultimate survival of any firm is depending on how an organization tends to use its available resources strategically (Chin-Chun & Zailani, 2016). Strategic orientation serves as a strategic tool to achieve competitive advantage through designed orientations that are market orientation and technology orientation which direct an organization to achieve superior performance through designed techniques which serve as a core reason to achieve strategic advantages which are rare, valuable and imitable firm's resource. Building a proper linkage between the exploration of risky ideas and exploitation of old certainties serves as a medium to achieve competitive advantage over its direct and indirect competitors in the market (Hong & Yoo, 2013).

Firms nowadays are working on implementing those innovative strategies that are involved actively in grasping external knowledge acquisition in continuous changing environments. Firms must grasp proper knowledge about the process of new product development that

provides a vast knowledge exposure about the external environment (Lichtenthaler, 2016). Research based primarily on strategic orientation focuses on individual drivers and helps to identify unexplored needs and wants of desired target audience through four basic components that include market orientation, technology, entrepreneurial and relationship orientations.

Literature has put emphasis on the scenario that those firms which are primarily focusing on only generalized view of strategic orientation face much loss comparatively to those which are focusing on the mix of multiple orientations in the long run (Ho & Plewa, 2015). A firm's strategic orientation is critical to the management of new product development knowledge because it helps determine how new product development knowledge is shaped, learned, relocated, and joined as a reserve base for developing and launching new products. Firms should understand, adapt, and achieve their strategic orientation to create and maintain positional compensations. Gatignon & Xuereb's, (1997), examines the relationship between strategic orientation and innovation outcomes; which consider market orientation and technological orientation as two important ancestor strategic orientation dimensions that influence new product development knowledge management capabilities that ultimately blessed an organization with sustainable competitive edge to launch successful product in the market (Im, Vorhies & Heiman, 2016).




**Source:** Adapted from Gatignon & Xuereb (1997).

**Figure: 1** Strategic Orientation Dimensions

## Strategic orientations

- **Ethnocentric predisposition:** the tendency of a manager or multinational company to rely on the values and interests of the parent company in formulating and implementing the strategic plan.
- **Polycentric predisposition:** the tendency of a multinational to tailor its strategic plan to meet the needs of the local culture.
- **Regiocentric predisposition:** the tendency of a multinational to use a strategy that addresses both local and regional needs.
- **Geocentric predisposition:** the tendency of a multinational to construct its strategic plan with a global view of operations.

**Source:** Adapted from Sriram, (1996)

**Figure: 2** Strategic Orientation Predispositions

### 2.1.2 Types of Strategic Orientation

#### 2.1.2.1 Market Orientation (MO)

Market orientation is regarded as a crucial strategy or capability that helps organizations stay competitive in today's uncertain business environment (Liao, Change, Wu & Katrichis, 2011), and it is considered both a marketing concept and a management strategy (Mokhtar, Yusoff & Ahmad, 2014).By adopting marketing orientation, the organization manages to satisfy its customers' needs over the long term (Chad, 2013; Kirca, 2011). Basim & Zaki (2016) maintained that market orientation developed its origins from the marketing as the management philosophy, meaning that the organizational goals are to determine the needs and preferences of customers and to deliver customer satisfaction.

There are various variations of definitions of market orientation by different scholars in the marketing literature (Hilman & Kaliappen, 2014). Shapiro (1988) in Obeidat (2016) defined market orientation as a managerial decision-making practice with a commitment shared within the organization. Market orientation refers to the extent to which the firm's strategies and operations are ready to respond to market demands and any changes in the market (Nasir, Abdullah & John, 2017). Market orientation is a business model that focuses on continuous improvement for superior value for their desired target audience with inclusion of all the employees working for the achievement of set objectives (Narver & Slater, 1990). Zahra (2008) suggests that firms with a high market orientation are likely to have good customer relations and create superior customer value. Market orientation encompasses a firm's organization-wide generation of market intelligence pertaining to current and future customer needs, dissemination of the intelligence across departments, and organization-wide responsiveness to it Jaworski & Kohli (1993) in Obeidat (2016).

Basim and Zaki (2016) opined that majority of the recent studies integrate market orientation form either behavioral or a cultural perspective. Literature review indicates that market

orientation is conceptualized from two different perspectives: as Culture (Narver & Slater, 1990), and as Behaviour (Kohli & Jaworski, 1990).

From behavioural point of view, Kohli & Jaworski (1990) define market orientation as the organization wide information generation, dissemination and responsiveness to market intelligence. The behavioral perspective is built on the information collected through various activities, as generate, disseminate and respond.

From cultural point of view, Narver & Slater (1990) define market orientation as the organizational culture that most effectively and efficiently creates the necessary behaviours for the creation of superior value for buyers and, thus, continuous superior performance for the business. They suggest that market orientation is expressed by three behavioural components: customer orientation, competitor orientation and inter-functional coordination. The cultural perspective focuses the organizational criteria on values that encourage behaviours that are consistent with market, such as customer orientation, competitor orientation and inter-functional coordination (Narver & Slater, 1990; Altuntaş, Semercioz & Eregez, 2013; Kirca, 2011; Al-Mohammad, 2010; Tutar, Nart & Bingol, 2015).

Market orientation requires firms to monitor changing customer needs, determine the impact of those changes on customer satisfaction, increase the rate of product innovation, and implement strategies that build the firm's competitive advantage (Mahmoud, Blankson, Owusu-Frimpong, Nwankwo & Trang, 2016; Masa'deh, Obeidat & Tarhini, 2016). The definition provided by Narver & Slatter (1990) is adopted in this study, where customer orientation, competitor orientation, and inter-functional coordination reflect market orientation. Customer orientation refers to finding information about customers 'needs and wants for the present and future in order to provide them with superior value added offerings (Hilman & Kaliappen, 2014). Competitor orientation refers to considering the short-range fortes and flows, and long range abilities and tactics of existing and possible rivals to develop awareness of their information and strategies (Hilman & Kaliappen, 2014). Inter-functional

Coordination enables firms to pick up warning or opportunity signals, process and convert them into specific departmental deliverables, and ensures convergence of efforts (Balodi, 2014).

Market orientation also refers to the extent to which a firm's business strategy is sufficiently oriented to its target customers' expressed and latent needs (Slater & Narver, 1998) so as to continuously create superior value for them (Narver & Slater, 1990) by providing products that fit their needs best (Day,1994). The products introduced by companies with market orientation are likely to be perceived by customers as satisfying their current needs better than the competing products do (Cooper, 2000). Market oriented firms may develop radical innovations by consistently drawing upon lead users' insights (VonHippel, 1986). Market-oriented firms excel in their ability to seek and absorb market information to create and deliver products of superior customer value. Thus, they are more attuned to changes and trends in the market place, and more actively anticipate and prepare for changes (Langerak, Hultink & Robben, 2004). Not only do they proactively acquire, disseminate, and respond to market intelligence from target buyers and current and potential competitors (Jaworski & Kohli, 1993), but they also endeavour to develop market sensing and customer-linking capabilities (Day, 1994; Hult & Ketchen, 2001), thereby allowing them to direct sufficient resources to fulfill customers' needs in creating and promoting new ideas, products, and processes (Slater & Narver, 1998; Langerak et al., 2004). As such, market orientation is likely to enhance an organization's new product commercialization performance in that it drives a continuous and proactive orientation toward meeting customer needs by emphasizing more effective use of market information (Han, Kim & Srivastava, 1998); Langerak et al., 2004; Atuahene-Gima, Slater & Olson, 2005).

Previous research has established the positive link between market orientation and firm performance, although it is a link that may require the support of entrepreneurial behaviours in information and communication industries (Zahra, 2008) or that may vary in strength

between manufacturing and service industries, depending on national culture or types of performance measures used (Kirca, Jayachandran & Bearden, 2005). Deshpande and Farley (1996) examine three different market orientation scales; those developed by Narver and Slater, (1990), Kohli, Jaworski and Kumar, (1993). Deshpande, Farley and Webster (1993) find that all three scales correlated with performance measures. In an artistic research environment, Voss & Voss (2000) indicate that the association between market orientation and performance varies depending on the type of performance measure used.

Market orientation is a business model that focuses on continuous improvement for superior value for their desired target audience with inclusion of all the employees working for the achievement of set objectives through two basic approaches i.e. programmatic approach and market back approach. The first approach provides knowledge about the market scenario through different educational programs that implement change in proving superior value for their customers. Second approach deals with the opposite case as the organization learns from the market through its different marketing efforts to create value for their customers according to the needs and wants of their desired customers (Narver, Slater & Tietje, 1998; Matsuno & Mentzer, 2015).

The process of creating a market orientation mainly requires a cross functional commitment of an organization  as stated by the Narver & Slater in the above statement that mainly transforms necessary skills into processes and then ultimately fulfilling an objective of core value for their desired target audience (Deshpande & Farley, 2004). Market orientation as characterized by Narver & Slater, (1990) consists of three behavioural components that are customer orientation (continuous understanding of both current and potential customers in the market and create superior value for them), competitor orientation (continuous understanding of your current and potential competitors present in the market along with their strategies they are using to create superior value for their customers) and inter functional coordination (the coordination and exchange of relevant knowledge among all the departments of

organization to utilize the relevant knowledge to create superior value as per the needs and wants of desired target audience).

Development of market orientation is primarily concerned to create superior value for its desired target audience supported by the cross functional commitment from its employees of different departments. This value is then transformed into activities performed by the company as per the needs and wants of its target customers. Thus market orientation is primarily dependent on two prime objectives, first to create organizational commitment to create superior value and second to develop certain skills to achieve those objectives (Deshpande & Farely, 1997).

For the ultimate success of new product development a continuous understanding of market is one of the key tools that direct an organization to achieve its core objectives and one of the prime reasons for the failure of newly launched products as discussed by (Narver & Slater, 1998, Kahn, 2001 & Calantone, 2014) is the lack of understanding and ongoing fluctuating demands from the market like flux in technology, unsupportive environment and cultural differences lead to a major difference in the properties of new product and their desired target audience.

Market information is one of the key tools that is used by many organizations to create optimum understanding of the market that includes both the actions of their competitors and their target customers through both primary and secondary basis to examine their actions towards new offerings due duly launched products in the market through market surveys, information scanning and other techniques to maximize their information about the interest of their customers and actions of their competitors (Xu, Frankwick & Ramirez, 2016).

The increase in globalization and interacting demands of customers from every angle of the market makes it vulnerable for the companies to pay great emphasis on their market intelligence programs to maintain their market share in this stage of increased competition, continuous change in the demands of emerging markets with inclusion of technological

advancement the products with limited features seem to last longer for shorter span of time for any company rather operating domestically or globally (Kuester & Hildesheim, 2016).

Products having shorter span of life cycle had declined in this competitive environment and almost every firm in order to sustain their consistency and commitment towards creating value by winning the trusts of every single customer in the market, every firm is moving towards innovation programs by coping up with pace of latest technology to add distinguished and competent features in their new offerings that allow them to grasp maximum market share through creation of value for their customers (Morgan & Strong, 2015).

Further studies discussed the development of more complex products with greater ease of technological advancement provides some fruitful insights for the companies to enhance the level of performance and trust in the market and market orientation is an important tool as discussed in the light of literature that enables manager to enhance the effectiveness of new product in the market that serves as a contribution towards success of new product in the market.

Much of the focus is emphasized on the innovation procedures and techniques through knowledge driven activities from the external environment serves as a prime objective for any organization to utilize the ultimate components of market orientation that allows an organization with the scope of looking upon each of the major side while going for the launch and development of new product in the market. Different companies tend to adopt different learning methods to overcome the duly stated components of market orientation according to the type of environment, market and competition they are facing (Liepe & Sakalas, 2015). The elements that are collecting information about the market, grasp the information accordingly, implement information according to available resources and monitor the activities performed by the departments being considered by an organization for the success of new product in the market.

Due to sheer competition and continuous improvement in the competent features of new offerings in the market, companies tend to have firm knowledge about the actions of their competitors and respective needs and wants of their target audience to design their new products (Davcik, Nebojsa & Sharma, 2016). According to the available knowledge they have to seek proper learning and know about the standards that are required for the distinctive competencies which in future can be served as a potential competitive advantage for the firm which in turn can be further utilized by the members to introduce a new product offerings in the market and it can only be possible if firms will consider the behavioural components of market orientation the most important and collect complete information about the current needs and demands of customers along with the actions of their competitors through strong aligned network of communication regarding sharing of information and ideas while working on the development of new product and its performance in the market (Eisend, Evanschitzky & Calantone, 2016).

Different elements are considered as one of the important jaw lines for the success of new product in the market that includes collecting relevant knowledge about the market, grasp that information accordingly, implements information according to the given resources and evaluate that information through market intelligence and activities performed within an organization. Since organizational scholars put great emphasis on the important role of communication network about the collected knowledge within an organization as they can coordinate their interdependent tasks according to the external knowledge that serves as a key to a success of new product in the market (Sosa, Gargiulo & Rowles, 2015).

Rooted in extensive Market Orientation literature is the distinction between three behavioral components of the Market Orientation construct: customer orientation, competitor orientation and inter-functional coordination (Narver & Slater, 1990, Jaworski & Kohli, 1993). It is concerned with all the activities involved with gathering and understanding information about the customers and competitors in the target market and disseminating this information

throughout the organization (Narver & Slater, 1990). Market Orientation is the set of benefits that puts the customer interest first, while not excluding those of all other stakeholders such as owners, managers and employees, in order to develop a long term profitability enterprise (Deshpande, 2009).


**Source:** Adapted from **Narver & Slater, (1990).**

**Figure: 3** Market Orientation Components

### 2.1.2.2 Components of Market Orientation

#### i. Customer Orientation

The origin of customer orientation can be traced to the development of the marketing concept, which is basically a business philosophy. The customer orientation concepts were presented early in the literature as the application of the marketing concepts at individual level individual of the salesperson (Basim & Zaki, 2016). Customer orientation determines the degree to which the salesperson is willing to help customers satisfy those needs and make better buying decisions by offering products that satisfy their needs by adopting the sales presentation tactics and high pressure selling (Pousa & Mathieu, 2014). In the research literature, customer orientation is defined as an employee's tendency or predisposition to match customer needs in an on-the-job context (Basim & Zaki, 2016). It seems that creating a customer-oriented business culture is important for successful operations in an increasingly competitive service- oriented market. Moreover, customer orientation is sufficient

understanding of one's target buyers to be able to create superior value for them continuously. Likewise, in a customer orientation the customer focus has been described as customer of marketing. Customers have preferences both immediately as well as long term and short term preferences. The immediate or short term preferences are felt and clearly articulated while long term preferences (or needs) tend to be latent (Korunka, Scharitzer, Carayon, Hoonakker, Sonnek & Sainfort, 2007; Theoharakis & Hooley, 2008). Customer orientation is the organization-wide gathering, sharing and use of intelligence about customer coordinated actions based on that intelligence (Rapp, Trainor & Agnihotri, 2010). Jones, Busch and Dacin (2003) agree with the definition that states that customer orientation is a selling behavior in which salespeople assist customers to satisfy their long-term wants and needs versus a sales orientation which places the selling organization and or/sales person before the customer. These aspects of customer orientation would help a firm to garner market share and profitability by identifying customer needs. Customer adoption is built in such way that mirrors in the market orientation. Market-oriented organizations need to learn about their customer and continue to update their learning (Da-Silva, Davies & Naude, 2002).

On the other hand, Singh and Koshy (2011) stated that customer orientation is illustrated as part of a broader concept - service quality which could be directly influenced by human factors dimensions (Korunka et al., 2007). Although the link between customer orientation and performance has been challenged (Theoharakis & Hooley, 2008; Paarlberg, 2007) customer orientation may improve organization performance by providing greater value and motivation to customers (Basim & Zaki, 2016).

Customer orientation is the firm's efficient understanding of its potential target audience in order to be able to create superior value for them continuously (Narver & Slater, 1990).Customer orientation is an organizational culture that facilitates the understanding of targeted buyers and allows for the continuous creation of customer value (Narver & Slater, 1990). Customer orientation is the main determiner of market orientation since customer

orientation focuses on creating value for customer regardless of sector, industry, profession (McNaughton, Osborne & Imrie, 2002). Firms with a customer orientation generate intelligence about the current and future needs of targeted customers and disseminate the new intelligence throughout the organization. Employees within a customer-oriented organization are aware of who the customers are and how they should be served. As they learn about the needs of their customers, they are quick to share the new information with other individuals and departments within the organization to ensure that the firm can continue to keep pace with customer needs, and anticipate future needs. A critical component of customer orientation is the emphasis on seeing supply chain opportunities and constraints from the perspective of the customer (Deshpande et al.1993; Narver & Slater, 1990). This allows the firm to identify potential new customers along with opportunities to create value for the customer.

Customer orientation emphasizes on the importance of customer to firms performance in many aspects including new product development. Narver and Slater (1990) define customer orientation as the firm's sufficient understanding of its target buyers in order to be able to create superior value for them continuously. It is crucial to note the on-going controversial debate in the literature concerning the relationship between customer orientation and innovation. A group of researchers advocate the argument that customer orientation favours innovation (Atuahene-Gima, 1996; Hurley & Hult, 1998; Lukas & Ferrel, 2000; Paladino, 2007; Theoharakis & Hooley, 2008). On the contrary, another group suggests that an overemphasis on customers could lead to trivial innovations and myopic research and development, which might lower the firms' innovative competence (Lawton, Parasuraman, 1980; Christensen & Bower, 1996; Frosch, 1996; Meredith, 2002). The reasons mentioned are that customers are not knowledgeable about the latest market trends or technologies and are inherently short-sighted (MacDonald, 1995). However, the counter argument still needs more empirical support. Despite the questioned relationship between customer orientation

and innovation, a bulk of literature has supported the positive link between these two factors. This study argues that a better understanding of customer needs by means of customer orientation allows the firms to offer new and superior products that satisfy customers. The degree at which customers are oriented in terms of having preference to a particular product or offering despite the price determine the extent to which the ICT firms increases their entrepreneurial development. The higher the customers are educated and knowledgeable about the firms' product or service the higher the level of entrepreneurial development.

ii. **Competitor Orientation**

A manager with a competitor orientation wants to win over others even at the expense of profitability (Bendle & Vandenbosch, 2014). Competitors are the most important stakeholders that an organization must observe permanently and carefully. An organization is forced to act constantly so that its customers will not be attracted and captured by its competitors. An organization must present its products to the customer optimally, demonstrating how it's different from its competitors. It must at all times proceed at high levels and be respectful towards its competitors, despite of fierce competition (Dahan & Shoham, 2014).

Some scholars describe the competitor orientation as the focus on in depth estimation of a group of chosen competitors (Basim & Zaki, 2016). Under this kind of strategic orientation, business units concentrate on the competitor. The goal of strategic functions is to offer resources and capabilities as well as to disseminate the information gathered from this estimation. The competitor orientation refers to the continuous observation of the competitor and catching opportunities by creating products and services that are differentiated from those competitors (Reulink, 2012 & Al-Mohammad, 2010).

A competitor orientation can be defined as the ability of the firm to identify, analyze and respond to the actions taken by competitors (Narver & Slater, 1990).Competitor orientation is an organizational culture that stresses the understanding of the short-term strengths and

weaknesses and long-term capabilities and strategies of the current and potential key competitors (Deshpande et al.1993; Narver & Slater, 1990). Firms adopting a competitor orientation develop an in-depth assessment of targeted competitors and potential competitors and use the resulting knowledge to match or exceed competitors' strengths (Kohli & Jaworski, 1990; Olson et al., 2005). In a competitor-oriented firm, competitive assessment is not solely the responsibility of senior management. Employees throughout the organization participate in the development of intelligence regarding competitors' new products and services, as well as products and services offered by companies not considered to be direct competitors.

The level of competitor orientation determines the extent ICT firms adopt a strategic measure to influence their entrepreneurship development. The level of competition a firm faces determines whether the firm will come up with a new product in the market. Competition for larger market share is the key propeller that pushes the firm to engage in entrepreneurial development in order to out weight its competitors in the market.

**iii. Inter-Functional Coordination (Orientation)**

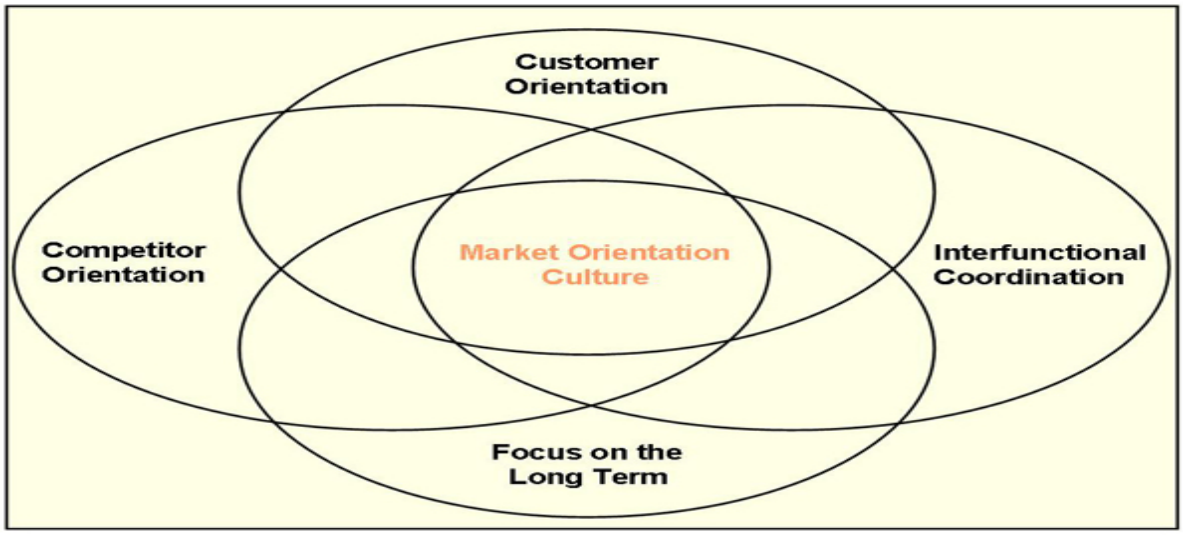
In terms of inter - functional coordination, all units within the firm should be coordinated to maintain a larger market share. No unit is expected to work independently but act as a synergy for higher performance of the firms in the market. Inter-functional component refers to all the organizations coordinated actions (for instance the utilization of organizational resources) taken to create superior value for customers based on the information of competitors and customers (Narver & Slater, 1990). Information sharing and communication across all functions of the organizations, especially in the context of market information, has a positive effect on the development of new products. This behavioural component stresses the importance of structural characteristics of the organization when adopting the Market Orientation (Grinstein, 2008). A meta-analysis study of Kirca, Jayachandran and Bearden (2005) resulted in three important antecedents for the implementation of Market Orientation:

Top management emphasis, interdepartmental connectedness, and market-based reward systems for employees. Noteworthy is the fact that the authors did not find significant relationships between Market Orientation-centralization and Market Orientation – formalization. This implies that by ensuring top management emphasis, interdepartmental connectedness and market-based reward systems, Market Orientation can be effectively implemented even in organizations with centralized structures and high degrees of formalization (Kirca, Jayachandran & Bearden, 2005).

Although the debates on the effects of customer and competitor orientation on innovation output continues, the majority of scholars agree that organizations should focus on all three components of Market Orientation to simultaneously exploit existing product innovations and explore new ones (Grinstein, 2008; Atuahene-Gima, 2005), therefore organizations must simultaneously implement proactive and responsive MO (Narver, Slater & MacLachlan, 2004).

In summary, the Market Orientation objective is to create sustained competitive advantage by providing customers with products and services with superior value in comparison with its competitors. Companies must continually adapt to the changing environment and new market opportunities and align their internal organization accordingly to exploit, develop or obtain the necessary resources. If they cannot attain resources and/or activities themselves, they must use external sources like strategic alliances, mergers or acquisitions. Market Orientation companies must be aware of internal and external challenges when searching for market opportunities based on customer and competitor knowledge. An overreliance on customer input, however, can harm the discovery of new markets. These customers' needs most likely lead to incremental improvements at existing products or services, and less likely will trigger latent customer needs that often lead to new markets and radical innovations. Overreliance on competitors will also less likely lead to new markets and radical innovations. Furthermore,

organizations that imitate rivals run the risk of serving products that do not comply with the demand of (potential) customers.




**Source:** Adapted from Narver, Slater & MacLachlan, (2004).

**Figure 4:** Interconnectivity of Market Orientation Components

### 2.1.2.3 Technology Orientation (TO)

Technology is an important method for connecting customers and organizations (Obeidat, 2016) and organizations use technology to improve their ability to collect customer information (Altamony, Masa'deh, Alshurideh & Obeidat, 2012; Masa'deh, 2013; Shannak, Masa'deh, Obeidat & Almajali, 2010; Tsou, Chen, Liao, 2014). An organization that is guided by technology has the opportunity to accumulate vast technological knowledge stores by past experience and processes which might be used to its advantage (Zhou & Li, 2010). A technology oriented firm seeks to acquire new and advanced technologies to develop new processes, products, and services, even though the rate of technological change within its industry might affect its technological adoption or development (Al-Ansaari, Bederr & Chen, 2015)

The term technology is defined as merger of various kinds of techniques, developments, approaches and skills for the tenacity of production of different kinds of goods and services (Gatignon & Xuereb, 1997). Technology-oriented firm can be defined as ability of the firm to

acquire potential technological background that can be utilized in the development of new products (Gatignon & Xuereb, 1997).

Technology orientation is defined as a firm's inclination to introduce or use new technologies, products, or innovations (Obeidat, 2016). It suggests that customer value and the long-term success of the organization depends on new innovations, technological solutions, products, services, or processes (Hakala, 2011). Jeong, Pae and Zhou (2006) stated that an organization's technical skills, Research and Development resources, and technological base can be central in bringing innovative, better designed products into the market. As a result, a technology oriented organization is proactive in acquiring new technology and applying the latest technologies to develop new products / services or supporting applications. Accordingly, it is proposed that a company's technology orientation should lead to the development of more innovative, technologically superior products compared to those offered by competitors (Tsuo, Chen & Liao, 2014).Technology orientation thus contributes tremendously to the improvement of product performance and business performance (Salojarvi, Ritala, Sainio & Saarenketo, 2015).

Market orientation is mainly focused on the external environment of the organization, in terms of its customers and competitors, and in turning market knowledge into valuable actions, technology orientation approaches the same customer value dilemma but from an internal perspective (Obeidat, 2016). The development of new technologies, products and services are seen as key to creating customer value and providing organizations with a competitive advantage. Entrepreneurial orientation suggests that certain behaviours or processes - namely innovativeness, proactiveness, and risk - taking are crucial for success (Hakala, 2011).

Different forms of technology can be the set of information, services and techniques that can be transformed into machines, gadgets and other kinds of manufacturing factories to produce quality products as well as service to grasp maximum market share and brand equity in the

minds of desired target audience (Wind, Jerry & Mahajan, 1998). As customer pull is the philosophy used for market orientation, technological push is the term referred for technology orientation which advocates the commitment towards research and development, acquisition of new technology and application of new technology to encourage implementation of new ideas adapted from the market or internal to an organization (Zhou & Tse, 2005).

Technology orientation, or the closely related terms of innovation and product orientation (Grinstein, 2008), refers to a firm's inclination to introduce or use new technologies, products or innovations (Gatignon & Xuereb 1997; Hult et al. 2004). It suggests that customer value and the long-term success of the firm is best created through new innovations, technological solutions, products, services or production processes (Gatignon & Xuereb, 1997; Grinstein, 2008; Hamel & Prahalad, 1991). Customers are unlikely to wish for things they are not aware of (Hamel & Prahalad, 1991). Therefore, product differentiation from the competition or cost advantages in production can be achieved by developing and adapting new technologies (Gatignon & Xuereb, 1997).

Investment in new technologies, rather than the development of products on the basis of current customer needs, is seen as securing the viability of firms in times of disruptive changes in their markets (Christensen & Bower, 1996). A technology orientation is said to improve business or new product performance (Day, 1999; Gatignon & Xuereb,1997), but studies have not always identified positive effects and have, on occasion, found detrimental effects (Gao et al. 2007). In essence, the interest in new solutions that create superior customer value, which is at the heart of technology orientation, is incorporated in the Hunt and Morgan (1995) view on market orientation, which includes the interest shown towards potential customers. However, the commonly used scales for measuring market orientation do not incorporate any new technology, product or innovation dimensions, thus technology orientation is viewed separately from market orientation.

Technology oriented firms are excellent in taking dynamic turns for their benefits that allow them to spend heavily on their research and development schedules to mould the behaviour of knowledge as per the situations and circumstances they received from the market (Hakala & Kohtamaki, 2011). These turns are served as one of the critical drivers for breakthrough innovation in new product offerings that allow a firm to indulge them in creativity and innovation that guide them to acquire competitive edge over competitors (Chen, Jin, & Li, 2014). Mattia and Bianchi (2014) argued that success of the firm is widely dependent on its ability to alter its technological competences into valuable transformation. Specifically, it focuses on keeping optimal balance among utilization of given resources on the new product development with dynamic pace of technological advancement. Most firms are trying to extract maximum out of their technology capabilities which assist them in the production of new product development in the better organized way than before they are carrying out.

A firm can only pursue technology based innovation if it encourages its employees to adopt technology oriented culture that is to come up with innovative ideas, dynamic nature to adjust with changing situations to pursue breakthrough innovation culture and competitive strategies that equip a firm with competitive edge in the market (Kasim & Altinay, 2016). From a rapidly changing perspective this resource will help an organization to increase its new product development knowledge management capabilities that ultimately increases the percentage of success in the market in which the product will be launched (Han, Kim, & Kim, 2001).

#### 2.1.2.4 Resource Orientation (RO)

Understanding the resource orientation starts with understanding the resource – based - view (RBV). The RBV assumes that (bundles of) resources are heterogeneously distributed among companies and that most resources are not perfectly imitable or substitutable (Barney, 1991). For strategic resources to be the potential source of sustained competitive advantage, Barney (1991) suggests that company resources should meet certain criteria: VRIN. They must be

valuable (such that it reduces costs or increases value to customers), rare (so competitors do not use the same resource which makes the value less valuable), difficult to imitate and non-substitutable (competitors cannot obtain resources they do not have and they cannot offer strategically equivalent resources) (Barney, 1991). Strategic resources refer to all the assets, capabilities, organizational processes, firm attributes, information, knowledge, etc., controlled by a firm that enable the firm to conceive of and implement strategies that are efficient and effective (Barney, 1991). There is no generally accepted classification of company resources (Wit & Meyer, 2010), however, in the strategic literature, a few distinctions can be made (Grant, 2010; Crook, Ketchen, Combs, & Todd, 2008);

A. **Tangible Resources:** Physical (plant, equipment, machines, land), financial (cash, securities) and intangible resources.
B. **Technology (Patents, Copyrights, Trade Secrets):** Reputation (brands), relations and culture
C. **Human Resources**

Skills/know-how, capacity for communication and collaboration and motivation

Resources differ from capabilities. Capabilities refer to the organizations ability to develop and supply the superior product/service offering. These value-adding activities (for example Research and Development, production, logistics, marketing, sales) are jointly referred to as the activity system (Wit & Meyer, 2010) or the value chain (Porter, 1985) of a company. Although there are more analytic frameworks to analyze this activity system of a company, the value chain from Porter is the most used model. It distinguishes primary value-adding capabilities (inbound logistics, operations, outbound logistics, marketing/sales and service) from supporting activities (procurement, technology development, and human resource management and firm infrastructure). An important notion is that capabilities differ from industry to industry and that unique capabilities allow companies to offer customers superior proposition. Doing things better, more efficient, more effective, cheaper etc. than rival firms

is therefore a major component in gaining competitive advantage. A unique configuration of the capabilities will strengthen its source of competitive advantage and will often raise the barrier for rival companies to imitate the activity system (Wit & Meyer, 2010).

Leveraging strategic resources to create sustained competitive advantage will then turn into superior business performance (Barney, 1991). Crook, Ketchen, Combs and Todd (2008) researched in their meta-analysis the relationship between strategic resources and performance. They found that although resources do not have a direct influence on company performance, significant benefits over competitors appear when possessing more strategic resources. The fact that strategic resources do not have a direct influence on performance implicates that unique bundles of resources only explain performance to the extent that organizations are able to identify and capture the potential (economic) value they can create. They also confirmed that resources meeting the criteria of Barney (1991) are more strongly related to performance than resources that do not meet those criteria. Further, they disaggregated possible moderators of the strategic resources- performance relationship into smaller groupings according to the value chain classifications of Porter (1985): marketing, logistics, research and development, human resources, operations and firm infrastructure; and the resource groupings of Grant (2010): human, tangible and intangible. Results show that all classifications are significantly related to performance and that the effects of human and intangible resources are significantly larger than the effect for tangible resources (Crook, Ketchen, Combs & Todd, 2008). They found no significant differences between manufacturing/service organizations, diversified/undiversified organizations and small/large organizations.

As mentioned, unique bundles of resources (VRIN) alone do not explain competitive advantage, because there is no direct influence on company performance. An appropriate organization must be in place that can absorb and apply them, resulting in the VRIN/O criteria for the RBV. However, Kraaijenbrink, Spende and Groen (2010) argue that the

VRIN/O criteria are still not always necessary or sufficient to explain competitive advantage. Further, the RBV does not sufficiently consider the synergy between resource bundles and does not sufficiently recognize the role of managerial capabilities with regard to sustained competitive advantage. Therefore, this thesis does not adopt VRIN or the VRIN/O as determinants for RBV, but adopts the "Resource Orientation" construct from Paladino (2007). The RO construct has three dimensions that measure the degree to which an organization practices a RBV and thus is oriented toward the development of valuable and unique resource bundles (Paladino, 2007). The dimensions are: synergy (degree of resource sharing within the company to fully exploit the benefits), dynamism (degree of integration and deployment of resources to induce organizational learning) and uniqueness (the degree of difficultness for rivals to imitate the resource base). The RO implies companies have competitive advantage when a value creating strategy not simultaneously implemented by competitors is implemented. This competitive advantage is sustained when other companies are unable to duplicate this strategy and its benefits (Barney, 1991).

In summary, the RO objective is to create sustained competitive advantage by developing and deploying unique and costly - to - imitate (bundles of) resources for the purpose of exploiting environmental opportunities and neutralizing threats (Paladino, 2007) resulting in a unique (superior valuable) resource base that is immobile and heterogeneous (Barney, 1991). This offers companies access to unfolding market opportunities by fulfilling a latent demand of potential customers. Proponents of the RO argue that after setting long-term direction in building a strong resource base and activity system, opportunities in the market should be identified where the specific strengths of the resource base and activity system can be exploited. Even though the focus is on internal strength, within this perspective market positioning is extremely important because only a strong competitive position over rivals will result in above - average profitability (Wit & Meyer, 2010).

### 2.1.2.5 Learning Orientation (LO)

Learning is concerned with how organizations deal with errors (Argyris & Schön, 1978). Organizational learning can be divided into two types of learning: single-loop or double-loop learning. Single-loop (or adaptive) learning occurs when errors are detected and corrected and the organization continues with their present strategy, rules, procedures, goals and policies (Argyris & Schön, 1978). In other words, Adaptive or single - loop learning refers to learning within unrecognized constraints that reflect the organizations assumptions about its internal organization and its environment. It is usually sequential, incremental and focused on opportunities within the scope of the organizations activities (Slater & Narver, 1995) and is quite effective for the development of core capabilities. Double-loop (or generative) learning occurs when the same organization, in addition to the detection and corrections of errors, also questions and modifies existing norms, procedures, policies and goals (Argyris & Schön, 1978). In other words, generative or double-loop learning is not constrained with organizational boundaries, but implies that organizational members are willing to question long-held assumptions about its mission, customers, markets, products or technologies. It is frame-breaking and leads to out-of-the-box thinking compared to adaptive learning. Generative learning is more likely to induce radical innovations and the seizing of opportunities outside the scope of the organization (Slater & Narver, 1995). Sinkula, Baker, and Noordewiet (1997) essentially argue that generative learning, relative to adaptive learning, requires an organization to demonstrate a higher degree of commitment to learning, open- mindedness, and shared vision.

Learning orientation (LO) refers to the ability of an organization to develop new knowledge or insights that have the potential of influencing (strategic) behavior. It is “the organizations propensity to create and use knowledge (Sinkula, Baker & Noordewiet, 1997) in order to attain competitive advantage (Calantone & Cavusgil, 2002) cited by Hakala, (2010). Especially in dynamic markets, organizations must pursue the process of learning, changing

behavior and improving performance faster than their competitors. Following Huber (1991), the organizational learning process has four stages: knowledge acquisition, information distribution and information interpretation and organizational memory. Knowledge acquisition is about the process by which information (knowledge) is obtained, information distribution is the process by which information from different sources is distributed (shared) within the company leading to new information or understanding. Information interpretation is concerned with the process by which shared information is given a commonly understood interpretation; organizational memory refers to the process of storing knowledge for future use (Huber, 1991). Although there is an extensive literature stream conceptualizing LO as the four processes, others argue that LO must not be conceptualized as a process, but as an organizations propensity to learn. Organizations do not all learn in the same way, and the four stages of learning differ per company. Therefore, this thesis argues that organizations must be seen as cognitive enterprises (Wang, 2008) and that the three first-order-variables must be variables that represent the learning propensity are fundamental. This study therefore adopts: commitment to learning, open-mindedness, and shared vision (Sinkula, Baker & Noordewiet, 1997). Commitment to learning refers to the extent to which an organization places value on learning and their ability to think, reason and value causes and effects of their actions (Wang, 2008). Open-mindedness refers to the extent to which an organization proactively questions long-held routines, assumptions and beliefs (Sinkula, Baker & Noordewiet, 1997). A shared vision refers to the extent to which an organization develops and holds a universally understood focus (Wang, 2008). Open-minded organizational members that are committed to learn are motivated to learn, a shared vision guides them what to learn (Sinkula, Baker & Noordewiet, 1997). If an organization tests positive on these three first-order-variables, this organization has incorporated organizational learning. The higher the degree of these first-order-variables, the more likely generative learning is incorporated.

Organizations need a culture and climate that maximizes organizational learning about creating superior customer value (Slater & Narver, 1995). The degree of organizational learning is higher when: more of the organizations components obtain this knowledge and recognize it as potentially useful when more varied interpretations are developed and when more organizational units develop uniform comprehensions of the various interpretations (Huber, 1991). Learning organizations have a shared vision that energizes organizational members to constantly acquire process and spread knowledge throughout the organization about markets, customers, technologies, products or processes, and question long held assumptions and beliefs regarding their business.

In summary, learning orientation also deals with how resources and environment are connected with each other to achieve superior competitive advantage. It is a (more behavioural) orientation which allows organizations to learn from errors and improve their internal organization and its relationship with the environment. Adaptive learning refers to detecting and correcting errors within the boundaries of the organization where generative learning refers to detecting and correcting errors and questioning the boundaries of the organizations implying that organizational members are willing to question long-held assumptions about its mission, customers, markets, products or technologies (out – of – the - box thinking). Adaptive learning most likely leads to improvements of existing products, services and technologies in existing markets, where generative learning most likely leads to more radical innovations and seizing opportunities outside the scope of the organization. Organizations benefit when they are aware of the differences of these two modes and know how and when to apply the right mode. The higher the commitment to learning, open - mindedness and shared vision, the more able the organization is to implement generative learning. Not every company has a learning orientation. Reactors to the environment do not proactively learn and are more likely to be unsuccessful at developing innovations at all. They are usually imitators or they exit the market when changes occur

### 2.1.2.6 Entrepreneurial Orientation (EO)

Entrepreneurial orientation as a strategic orientation is concerned with the entrepreneurial aspects of a firm's strategy (Hakala, 2011). It determines a firm's willingness to stay ahead of its competitors and to take advantage of new opportunities to engage in innovation in an uncertain environment (Chen & Hsu, 2013). Entrepreneurial orientation is defined as an organization's willingness to find and accept new opportunities and implement change as a result (Zehir, Can & Karaboga, 2015). It also refers to the way organizations capture specific entrepreneurial aspects of decision making styles, methods, and practices (Tsering, 2015). In other words, entrepreneurial orientation relates to the methods, practices and decision making styles that managers use to act entrepreneurially (Real, Roldan & Leal, 2014).

Entrepreneurial orientation refers to the strategic mindset of a firm and encompasses the processes, practices and decision-making activities that facilitate the pursuit and exploitation of opportunities (Dhilwayo & Van Vuuren 2007). The entrepreneurial function includes the discovery, assessment and opportunities, in other words, new products, services or production processes; new firm strategies and organizational forms and new markets for new products (Shane and Venkataraman, 2000).

The entrepreneurial orientation concept suggests that firms should be entrepreneurial in order to achieve superior performance (Dess, Pinkham & Yang, 2011). This means that organizations need to have a strategic commitment to specific, observable actions in the form of innovation, proactiveness, and risk taking, and the strong support of those actions by top management (Gupta & Gupta, 2015). According to Covin and Slevin (1989), Covin and Slevin (1991) and Miller (1983) all in Obeidat (2016), engaging in product-market innovation, being the first to enter new markets, and understanding risky ventures are at the heart of entrepreneurship. Therefore, innovativeness, risk taking, and proactiveness are used to represent entrepreneurial orientation in this work. Innovativeness refers to the willingness to support creativity and experimentation in introducing new products/ services, and novelty,

technological leadership and Research & Development in developing new processes (Lumpkin & Dess, 1996). Proactiveness refers to seeking new opportunities in the market, anticipating future demands and opportunities in the market, participating in emerging markets, shaping the environment, and introducing new products and brands before their rivals (Zehir, Can & Karaboga, 2015). Risk-taking refers to willingness to invest in large amounts of resources in projects whose results may be unknown and where the cost of failure may be high (Etemad, 2015).

EO is concerned with the entrepreneurial aspects of organizations strategies (Hakala, 2010). It reflects behavioral processes essential for entering new or established markets with new or existing goods or services (Lumpkin & Dess, 1996). Many researchers followed the view of Miller (1983) that entrepreneurial organizations engage in product/market innovation, are concerned with risky ventures and are the first to come up with proactive innovations beating the competitors to the punch.

Further research suggests that two other dimensions are also characterizing EO, namely competitive aggressiveness and autonomy (Lumpkin & Dess, 1996). In line with Miller's definition of the entrepreneurial firm, the competitive aggressiveness component (beating competitors to the punch) complements the EO construct because it differs from the proactiveness component. Competitive aggressiveness refers to the organizations ability to outperform rivals by directly and intensively challenging rivals by achieving new entry or improving market position (Lumpkin & Dess, 2001). Thus, proactiveness is concerned with meeting demand while competitive aggressiveness is concerned with competing for demand. Autonomy refers to the extent that individuals or team in an organization are able to be self-directed when perusing market opportunities from the initial idea to completion (Lumpkin & Dess, 2001).

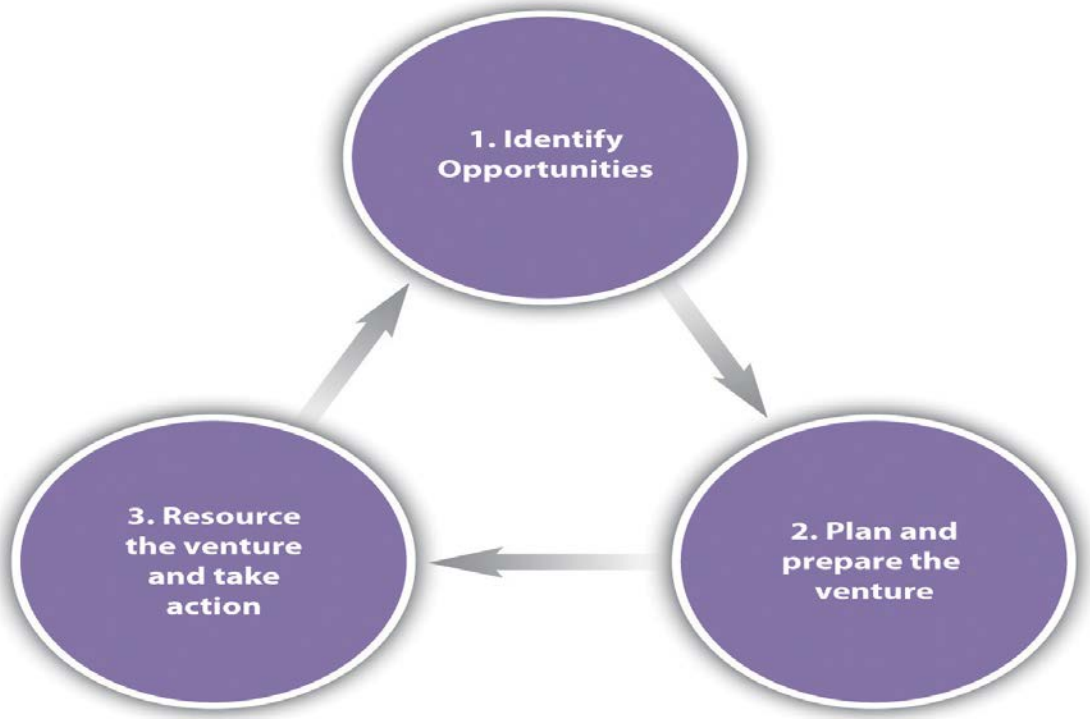
Entrepreneurial organizations are better able to match their internal organization with the environment in dynamic competitive environments. They change and shape the environment

and allocate resources to exploit uncertain business opportunities (Hakala, 2010). Kollman & Stockmann found that, with regard to the relation between EO and exploration versus exploitation activities and the degree of innovative outcomes, companies with a strong EO apparently will pursue innovation goals more effectively. Further, they provided proof that no contradictory organizational cultures are necessary to pursue exploratory and exploitative activities simultaneously when adopting an EO strategy. The five key dimensions of EO (Lumpkin & Dess, 1996, 2001; Kollman & Stockmann, 2010), vary independently suggesting that for an entrepreneurial approach to strategy making to be useful, it depends on organizational and environmental conditions (Lumpkin & Dess, 2001).

In sum, EO refers to the behavioural processes essential for entering new or established markets with new or existing goods or services, particularly in dynamic competitive environments. Entrepreneurial organizations are better able to match their internal organization by changing and shaping the environment and allocate resources to exploit uncertain business opportunities. The dimensions innovativeness, risk taking, proactiveness, competitive aggressiveness and autonomy induce organizations to make proactive investments in resources that potentially lead to radical or discontinuous innovations with greater revenue potential than incremental innovations.

**i. Entrepreneurial Process**

There are three essential parts of the entrepreneurial process: (1) opportunity identification, (2) plan and prepare the venture, and (3) resource the venture and take action. Sometimes the process unfolds as depicted in Figure: 1




**Source:** Adapted from Lumpkin & Dess, (2001).

**Figure 5:** Three Essential Parts of the Entrepreneurial Process

### 2.1.2.7 Innovation Orientation

Innovation is the management of all the activities involved in the process of idea generation, technology development, manufacturing, and marketing of a new (or improved) product or manufacturing process or equipment (Trott, 2008). Siguaw, Simpson and Enz (2006) offered a lucid definition of innovation after reviewing several definitions. They defined innovation orientation as a multidimensional knowledge structure composed of a learning philosophy, strategic direction and trans functional beliefs that, in turn, guide and direct all organizational strategies and actions, including those embedded in the formal and informal systems, behaviours, competencies, and processes of the firm to promote innovative thinking and facilitate successful development, evolution, and execution of innovations.

Innovation is segregate into two; Radical innovation: an innovation that that embodies a new technology that results in a new market infrastructure (Garcia & Calantone, 2002). Incremental innovation: an innovation that provides new features, benefits, or improvements

to the existing technology in the existing market (Garcia & Calantone, 2002). Innovation has been investigated for several years now and has been referred to as a black box (Gungor & Gozlu, 2012). Theoretically, innovaton has been reported to rest on the resource base of the firm (Barney, 2001). This view suggests that managing and combining different types of resources leads to the development of dynamic capabilities. Based on this view in order to organize the innovation process efficiently, technological capabilities must be combined with various skills such as marketing, management, and organizational competencies (Hajir, Obeidat, Al-dalahmeh & Masa'deh, 2015; Mothe & Thi, 2010). Another perspective is the knowledge - based view of the firm which builds upon and extends the resource - based view of the firm. Based on this perspective, intangible resources are considered an organization's most important resource. This is because an organization's competitive advantage is not just the product of tangible resource as much as it is the product of the services rendered by those resources that are in turn a function of the firm's know how (Kanaan, Masa'deh & Gharaibeh, 2013; Kateb, Swies & Maqableh, 2014; Massa & Testa, 2004). This perspective mainly focuses on learning in order to create new knowledge. However, the amount of information present is not the important thing, rather the application of that knowledge to create new knowledge (Alavi & Leidner, 2001). Therefore, an organization's management is concerned with both organizational learning and innovation (Albino, Garavelli & Schiuma, 2001). A recent evolution of the knowledge-based perspective recognizes that both tangible and intangible resources that are available to the organization and thus organization and thus are considered its main strategic tool.

VanWagenberg and Wubben (2005) defined innovation as a management process, involving multiple activities, performed by multiple actors, from one or several organizations during which new combinations of means and/or ends, which are new for creating and/or adopting unit, are developed and/or produced and/or implemented, and/or transferred to old and/or new market partners. Innovation can also be defined as the adoption of an idea, behaviour, system,

policy, program, device, process, product or service that is considered new to the organization (Mothe & Thi, 2010). A definition that is considered relevant to this study is the one provided by O'Sullivan and Dooley (2008) which refers to innovation as the process of making changes, large and small, radical and incremental, to products, processes, and services that results in the introduction of something new for the organization that adds value to customers, and contributes to the knowledge store of the organization.

Innovation research can be approached from several perspectives such as the individual, organization, and a nation. Organizational level innovation can be grouped into four categories. The first one is connected with the type of innovation, including innovation typology (Garcia & Calantone, 2002), its comparisons and illustrations of various types of innovation. Innovation types are classified based on the outcome of the innovation process. Some of these classifications include: organizational structure, production process, people, and products/services, technical, administrative, incremental, and radical. Oke, Barke and Myers (2007) proposed the following innovation typology: product (including radical and incremental) and process (including administrative, service, and production). Some scholars identified three types of innovation: incremental, really new, and radical (Alexander & Van Knippenberg, 2014).

Others have suggested classifying innovation into administrative vs. technical based on the objective of innovation adoption, rational plans vs. communication web vs. disciplined problem solving based on innovation's effect on firm competence, ad radical vs. incremental based on the extent of change in technology (Lee, 2011). Innovation can also be seen in terms of extremes such as radical and incremental, continuous and discontinuous, and sustainable and disruptive innovations (Robbin & O'Gorman, 2015).

The second category relates to the diffusion of innovation from various sources (O'Neill, Ponder & Buchholtz, 1998). According to Jonhson (2001), the implementation of innovation depends on three factors: framing, innovation environment, and innovation attributes.

Framing refers to the facilitating of an innovation in terms of political and strategic imperatives of the organization. Innovation environment refers to the internal tactical environment for innovation implementation. Innovation attributes refer to the characteristics of the innovation. However, having only one of these factors on its own is not sufficient to ensure success; a combination of these factors must exist to ensure the successful implementation of an innovation (Obeidat, 2016).

The third category examines the antecedents or determinants of organizational innovation (Sorensen & Stuart, 2000). According to the literature, two factors influence innovation which includes internal factors and external factors. Internal factors include the management and strategy of the firm, employees of the firm, and Research &Development department. The two internal factors of management and strategy, and employees are considered as the most important for innovation (Engen & Holen, 2014). This is because managers need to balance and lead the innovation process and make sure that the innovation fits the organization's strategy. Employees are important because they gain valuable knowledge from their interactions with customers thereby incorporating their knowledge in service innovation (Ordanini & Parasuraman, 2011). External factors include competition, deregulation, isomorphism, resource scarcity, and customer demand (Damanpour, 2009). Engen and Holen (2014) suggested that external factors influencing innovation include trajectories which refer to the ideas and logic that are diffused through social systems and actors which refer to key market factors such as customers, suppliers, and competitors. Customers, suppliers, law makers, and other authorities influence the environment of organizations and can directly and indirectly influence organizations to innovate. Therefore, organizations need to understand their environments and adapt to evolving conditions (Gungor & Gozlu, 2012).

Customer expectation is perhaps the most important external factor as companies build their innovation based on local customers' expectations (Fabrizio & Thomas, 2012). Internal factors are considered more important than external factors as Sternberg and Arndt (2001)

stated that innovation is highly dependent on internal factors rather than external factors. The fourth category adopts a consequence or result approach in terms of the relationship between innovation and organizational performance (Roper & Love, 2002). Organizational performance is considered the ultimate aim of implementing innovation as innovation involves not only providing access to markets but also enhancing and maintaining performance (Wang, Hult, Kitchen & Ahmad, 2009). In this study the first category will be investigated as innovation type is considered the main focus here. More specifically radical and incremental innovations will be used as dimensions to measure innovation based on the study conducted by Wang and Chen (2013).

#### 2.1.2.8 Interaction Orientation

There is a consistent focus on customers in the entrepreneurship and marketing literature, stressing that satisfied customers and improved customer service can lead to superior firm performance (Nasir, Al Mamun & Breen, 2017). The customer concept is concerned with the realization of superior customer value starting with the individual customer. Ramani and Kumar (2008) argued that the customer is an indispensable entity and interaction orientation is based on the belief that prescribes the unit of analysis for every marketing action and reaction to be the individual customer. Interaction orientation reflects the goodwill and value generated in one-to-one interaction between the customer and firm that can lead to superior firm performance (Nasir, Al Mamun & Breen, 2017). This study, therefore, adopts the concept introduced by Ramani and Kumar (2008), who argued that interaction orientation has a strong relationship with customer performance. The increase in customer satisfaction levels leads to the identification of profitable customers and an increase in firm performance (Al Mamun & Nasir, 2016; Ramani & Kumar, 2008).

#### 2.1.2.9 Product Orientation

The product orientation proposes that consumers favour products offering that offer the most quality, performance or innovative features (Kotler & Keller, 2013). However, managers are

sometimes caught in a love affair with their products. They might commit the "better mousetrap" fallacy, believing a better product will by itself lead people to beat a path to door (Kotler & Keller, 2013). It should be noted that a new or improved product will not necessarily be successful unless it's priced, distributed, advertised and sold properly.

#### 2.1.2.10 Production Orientation

The production orientation is one of the oldest orientations in business. It holds that consumers prefer products that are widely available and inexpensive. Managers of production-oriented businesses concentrate on achieving high production efficiency, low costs and mass distribution (Kotler & Keller, 2013). According to them, this orientation makes sense in developing countries such as China, where the largest PC manufacturer, Legend (principal owner of Lenovo Group), and domestic appliances giant Haier take advantage of the country's huge and inexpensive labour pool to dominate the market. Marketers also use the production concept when they want to expand the market.

#### 2.1.2.11 The Five (5) Levels of Strategic Orientation

There are five levels of Strategic Orientation in an organization according to Fox (2007). Each one builds on the previous one, providing you with a road map and a measure of progress towards Strategic Orientation. In most organizations or firms people would agree that Strategic Orientation is a positive factor that drives the organization. But what does that mean? How do you determine how strategically oriented your organization is, and what can you do to improve the situation?

The five levels of Strategic Orientation are as follows; i. Engaging in Strategic Dialogue, ii. Strategic Planning, iii. Strategic Measurement, iv. Developing a Strategic Calendar, v. Integrating Strategic Dialogue. Each of these are discussed below;

**i. Engaging in Strategic Dialogue**

The first step towards Strategic Orientation is to start talking about strategy. According to Robert (2000), eighty five percent of executive teams spend less than one hour per month

discussing strategy. If an executive team cannot find the time to lift their sights of the day to day operational and tactical issues to talk about strategy, then it should come as no surprise that it will not become an organizational priority.

The organization is likely to remain in fire-fighting mode indefinitely. It is easy enough to actually measure the amount of time executives spend discussing strategy. The optimum time will, of course, depend on the competitiveness of the industry in which they operate according to Porter's five Forces model for one method of determining industry competitiveness. It is important to focus on the quality of the discussion as well. Quality Strategic Dialogue requires continued questioning of assumptions. More complex techniques, such as Scenario Planning are also useful tools for increasing the quality of Strategic Dialogue (Fox, 2007).

ii. **Strategic Planning**

Once the Strategic Dialogue is in progress, it is important to formalize the outcome in a Strategic Plan. This should be a written document summarizing the Strategic Dialogue under at least the following broad headings;

A. **External Analysis:** A shared view on the external environment as it is relevant to the firm. Porter's five forces model provides a useful framework; the external analysis should also include a shared assessment of the opportunities and threats which the organization faces.

B. **Internal Analysis:** A shared view of the internal state of the company. The McKinsey 7-S Model may provide a useful framework. The internal analysis should also include a shared assessment of the organization's strengths and weaknesses.

C. **Vision:** Some form of vision statement or mission statement is required to describe the organization's ideal future state. This ideal future state should be cognizant of both the internal and external analysis, drawing on the organization’s strengths to take advantage of opportunities.

D. **Implementation Plan:** Having formulated a vision of the future, the organization needs to plan specific initiatives to achieve it. The Implementation Plan should take the form of a project of projects - a high level plan reflecting the achievement of specific strategic goals.

Most organizations have strategic plans, but often these are shelved - never to be looked at until next year's Strategic Planning conference. Often, they are also considered to be top secret, highly confidential, and only to be seen by a few select top managers. It is not surprising then, that such plans are seldom successfully implemented. To be successful, the Strategic Plan must be widely communicated to everyone who is to be involved in its execution, and held up for scrutiny, challenge and modification. The only good Strategic Plan is a living Strategic Plan (Fox, 2007).

To measure the success of your Strategic Plan, you could measure it as follows;1. The percentage of employees who have read the Strategic Plan 2.The percentage of employees who can tell you, more or less, what the Strategic Plan is, without having to refer back to the document 3.The percentage of corporate projects or initiatives which are directly aligned with and/or indicated by the Strategic Plan (Fox, 2007).

For a strategic planning and management process which can encompass all five levels of Strategic Orientation.

**iii. Strategic Measurement**

Once the Strategic Plan is in place, it is very helpful to be able to measure its success. This can be measured along two dimensions; are we doing what we set out to do in the plan? (Input Measures) Do what we set out to do in the plan have the effect that we anticipated? (Output Measures). The Balanced Scorecard provides a systemic methodology for creating Strategic Measurements. It is most important though, to ensure that you have at least one measure for every significant aspect of your Strategy. About 16 measures are usually ideal - more than 25 measures might suggest a lack of strategic focus and become difficult to

manage, and less than 12 almost surely indicates and oversimplification of the business. A good framework for establishing Strategic Measures involve;

A. Establishing specific Strategic Objectives aligned to your Vision.

B. Identifying specific variables that indicate progress towards the achievement of that Strategic Objective. It may be necessary to identify more than one variable per objective as objectives may be hard to quantify and may thus require proxy variables.

C. Set targets for each variable. These targets may be planned to change over time (e.g. to increase by 2% every month for the next 3 years) or may be constants. Change targets should always have a specific time dimension.

D. Devise specific initiatives to achieve each change target. (These should be the same initiatives as would be documented in the Strategic Plan.)

To measure the success of your Strategic Measurement, you could measure;

(1)The percentage of people who can tell you what the Strategic Measures are, and which ones are up and or down for the most recent period.

(2) The extent to which deviation for the measurement targets decreases over time after the introduction of the measure.

**iv. Developing a Strategic Calendar**

In order to ensure that the Strategic Plan lives, a Strategic Calendar should be prepared. The Strategic Calendar depicts the organizations Strategic Planning processes and events, as well as the relationships between them. Ideally, the Strategic Calendar should depict an annual planning cycle. The objectives of the Strategic Calendar are to,

Ensure Strategic Dialogue, Planning and Measurement take place on an ongoing basis. Often, Strategic Planning is an annual event, and there is little else to ensure that any thought is given to organizational strategy throughout the rest of the year. The Strategic Calendar should ensure ongoing and regular attention is paid to different aspects of the strategy on a rotating basis. This ensures that the Strategic Plan is continually reviewed and updated.

Ensure Strategic Dialogue, Planning and Measurement take place at different levels. Clearly, an organization would not like to review and update its entire strategy on a frequent basis. This would introduce uncertainty into the process, which would deteriorate the advantages gained from Strategic Planning in the first place. The Strategic Calendar should slice and dice the Strategic Planning process into different levels and components, and should ensure that these are each addressed in a logical and systematic process.

Integrate the Strategic Planning processes and events with those of other functions of the organization. Strategic Planning exists as part of the greater organization process and is particularly interlinked with Financial Planning and Human Resource Planning (particularly performance appraisal and incentivisation). The Strategic Calendar should reflect these interdependencies, ensuring that each activity is seen as part of the greater whole, rather than as an unwelcome chore (Fox, 2007).

**v. Integrating Strategic Dialogue**

Finally, the organization is ready to weave Strategic Dialogue into the very fabric of the organization's communications. Strategy involves establishing the metaphors and mental models which underlie the way in which people think about the organization. Refer to The Strategist as Playwright for a metaphor on the Strategist's role in writing the organization's dialogue. The extent to which people discuss the organization using the metaphors and mental models established during Strategic Dialogue indicates the extent to which people have internalized or "bought into" the strategy. Such internalization of metaphors and mental models will also guide their day to day action, ensuring a Strategy Oriented organization (Robert, 2000).

**2.1.2.12 Entrepreneurial Development**

Entrepreneurship has been described as the capacity and willingness to develop, organize and manage a business venture along with any of its risks in order to make a profit. While definitions of entrepreneurship typically focus on the launching and running of businesses,

due to the high risks involved in launching a start-up, a significant proportion of start-up businesses have to close due to lack of funding, bad business decisions, an economic crisis, lack of market demand or a combination of all of these (Belicove, 2012).

The term entrepreneurial development has been defined in various dimensions (Ndechukwu, 2001, McOliver, 1998 & Ameashi, 2007). However, referring to the productive transformation of an entrepreneur, a single thread runs through all of them: the ability to identify business opportunities, the ability to be able to harness the necessary resources to use opportunities identified, the ability and willingness to initiate and sustain appropriate actions towards the actualization of business objectives.

**2.1.2.13 Market Share**

Market share is the percentage of a market defined in terms of either units or revenue accounted for by a specific entity. Market share represents the percentage of an industry, or market's total sales that is earned by particular firms over a specified time period. Market share is calculated by taking the firm's sales over the period and dividing it by the total sales of the industry over the same period (Investopedia, 2018).Market share is the key indicator of market competitiveness - that is, how well a firm is doing against its competitors. "This is manifested in terms of changes in sales revenue, helps managers evaluate both primary and selective demand in their market. That is, it enables them to judge not only total market growth or decline but also trends in customers' selections among competitors (Farris, Neil, Bendle; Pfeifer & David, 2010).

Market share is the key indicator of market competitiveness - that is, how well a firm is doing against its competitors. "This is manifested in terms of changes in sales revenue, helps managers evaluate both primary and selective demand in their market. That is, it enables them to judge not only total market growth or decline but also trends in customers' selections among competitors.

**i. The Significance of Market Share**

Business investors and analysts monitor increases and decreases in market share cautiously, because this can be a sign of the relative competitiveness of the firm's products or services. As the total market for a product or service grows, a firm's that is maintaining its market share is growing revenues at the same rate as the total market. A firm's that is growing its market share will be growing its revenues faster than its competitors in the market space (Investopedia, 2018)

Market share increases can allow a firm's to achieve greater scale with its operations and improve profitability and entrepreneurial development. A firm's can try to expand its share of the market, either by lowering prices, using advertising or introducing new or different products. In addition, it can also grow the size of its market size by appealing to other audiences or demographics (Investopedia, 2018).

**2.1.2.14 Product Innovation**

In business and in economics, product innovation can become a catalyst for growth and with rapid advancements in transportation and information and communication technology over the past years; the old-World concepts of factor endowments and comparative advantage which focused on an area's unique inputs are outmoded for today's global economy. Innovation is production or adoption, assimilation, and exploitation of a value-added novelty in economic and social spheres; renewal and enlargement of products, services, and markets; development of new methods of production; and establishment of new management systems. It is both a process and an outcome (Edison, Ali & Torkar, 2014). Innovation includes original invention and creative use and defines innovation as a generation, admission and realization of new ideas, products, services and processes.

According to Peter F. Drucker (1985), the general sources of innovations are different, changes in industry structure, in market structure, in local and global demographics, in human perception, mood and meaning, in the amount of already available scientific knowledge, etc.

Innovation is the specific function of entrepreneurship, whether in an existing business, a public service institution, or a new venture started by a lone individual in the family kitchen. It is the means by which the entrepreneur either creates new wealth-producing resources or endows existing resources with enhanced potential for creating wealth (Drucker, 1985).

Essentially, innovativeness results from the achievement made by the firm in developing new products, services and processes. It is held that innovative firms are better performing than their competitors (Certo, Moss & Short, 2009). Lumpkin and Dess (1996) define innovativeness as the propensity of a firm to adopting new ideas, creative processes and experimentation which lead to new products, services or technological processes. They note that the idea of innovativeness was first associated with entrepreneurship by Schumpeter (1942) who emphasized the role of innovation in the entrepreneurial process. Certo et al. (2009) say that an innovative entry by a firm is able to disrupt existing market conditions and stimulate new demand by enacting Schumpeter's idea of the process of creative destruction which argues that the old technology is replaced by new technology through innovation and economic revolution.

The link between entrepreneurship development and innovation was supported by the results of Shane, Kolvereid and Westhead (1991), who found that innovation is among the key motives to start a business. Lumpkin and Dess (1996), state that innovativeness reflects a firm's tendency to engage in and support new ideas, novelty, experimentation, and creative processes that may result in new products, services or technological processes. According to Idemobi and Dapper (2017) Innovativeness refers to as the willingness to move forward from exiting technologies or practice and explore beyond the current borders and shows that a firm is putting effort into introducing new product to the market. Thus, innovativeness is vital for maintaining a firm's viability because it is a source of ideas that leads to improvements and new products and thus helps in sustaining a thriving firm (Lumpkin, Brigham & Moss, 2010).

Dess and Lumpkin (2005) states that innovation plays a key role in the construct of Entrepreneurial Orientation, this is due to the fact that, innovativeness is a culturally bound concept, which suggests that its levels and impacts across cultural barriers may differ. Technological innovation and Information Communication Technologies represent a way for developing World Nations to foster economic development, improve levels of education, business and training, as well as address gender issues within society (Lee-Roy, 2013).Innovation as a tool for development is usually focused on developing countries, particularly with respect to poverty.

**2.1.2.15 Risk Taking**

Risk Taking is important in the concept of Entrepreneurship because you cannot gain something without taking a risk. Risk taking is taking a chance on an outcome, not blindly, but by weighing the possible outcomes based on the available information you have. Risk can be defined as possibility of failure or loss or other adverse consequences in pursuing some activity or venture. Risk bearing and entrepreneurship are inseparable from each other. Risk, as an attribute, affects entrepreneurial behaviour. It is, among other things, the element of risk involved in entrepreneurial career, many people become hesitant to become entrepreneur.

Even those who take risk by joining entrepreneurship differ in the degree of risk taking ability and willingness. Depending on the degree of risk, risks can be categorized as high risk, moderate risk, and low risk. All three types of risks influence entrepreneurial behaviour differently.

**Table: 1 Three Types of Risks**

| High Risk | Moderate Risk | Low Risk |
|---|---|---|
| When an entrepreneur starts a venture without much knowledge about it, there are likely more chances of failure and, in turn, high risk. In practice, not many entrepreneurs follow this approach. | These are the entrepreneurs who do a lot of work and calculations to reduce the chances of failure and, thus moderate the risk involved in their ventures. They take calculated risks. The basic difference between an entrepreneur and a gambler lies in this only that the entrepreneur, through his/her calculates actions, continuously influences the outcome and, thus, reduces the risk. Entrepreneur controls risk. Gambler does not. | There may be some entrepreneurs who undertake some activity or venture where they would like to achieve 100 percent of what is desired. In fact, these entrepreneurs do not take any risk. These are like 'Fabian entrepreneurs' |

**Source:** Researcher Compilation (2018)

### 2.1.2.16 Proactiveness

Market proactiveness refers to the extent to which a firm anticipates and acts on future needs, (Lumpkin & Dess 1996). Proactive firms are often the first firms to enter new markets. Venkatraman (1989), proactiveness is the process of anticipating and acting on future needs by: seeking new opportunities which may or may not be related to the present line of operations, introduction of new product, and brands ahead of competition, strategically eliminating operations which are mature or declining stage of the life cycle.

### 2.1.2.17 Competitive Advantage

Competitive advantage is created by favorable terms of trade in product markets (Dierickx & Cool, 1989). That is, sales in which revenues exceed costs. Competitive advantage is revealed by super-normal returns (Barney, 2002; Peteraf, 1993). Competitive advantage is revealed by superior stock market performance stemming from surprising increases in expectations

(financial economics view). Competitive advantage is manifested in terms of shareholders' returns (Rumelt, 2003).

Business environment today is forcing companies to focus their efforts onto gaining more clients and increasing the overall level of efficiency and performance. Choosing the right strategy represents one of the key elements in strategic management, companies focusing solely on their own future and the means to cope with the numerous external influences and pressures (Igomu, 2015). Thus, the quest to identify sustainable competitive advantages has become more important than ever before. There is need for companies to look beyond conducting business to achieve much needed expansion and return on the investor's capital. In regards to this, companies should seek for more opportunities in current and emerging market while trying to minimise cost, improve their efficiency and maximize their market share by optimizing the opportunities available in the market and handling the problems and challenges (Igomu, 2015). . To reach these goals, the managements of businesses should realize that they live within a dynamic external and internal environment which has a lot of variables that affect the company and its market value.

A competitive advantage is what makes an entity's goods or services superior to all of a customer's other choices. The term is commonly used for businesses. The strategies work for any organization, country, or individual in a competitive environment. The term competitive advantage refers to the ability gained through attributes and resources to perform at a higher level than others in the same industry or market (Christensen & Fahey 1984, Kay 1994, Porter 1980 cited by Chacarbaghi & Lynch 1999). The study of this advantage has attracted profound research interest due to contemporary issues regarding superior performance levels of firms in today's competitive market. A firm is said to have a competitive advantage when it is implementing a value creating strategy not simultaneously being implemented by any current or potential player (Barney 1991 cited by Clulow et al. 2003)

Successfully implemented strategies will lift a firm to superior performance by facilitating the firm with competitive advantage to outperform current or potential players (Passemard & Calantone, 2000). To gain competitive advantage, a business strategy of a firm manipulates the various resources over which it has direct control, and these resources have the ability to generate competitive advantage (Reed & Fillippi 1990 cited by Rijamampianina 2003). Superior performance outcomes and superiority in production resources reflect competitive advantage (Lau, 2002)

To create a competitive advantage, you have got to be clear about these three determinants.

1. **Benefit:** What is the real benefit your product provides? It must be something that your customers truly need and that offers real value. You must know not only your product's features, but also its advantages, how they benefit your customers. That means being constantly aware of new trends that affect your product, especially new technology. For example, newspapers were slow to respond to the availability of free news on the internet. They thought people were willing to pay for news delivered on a piece of paper once a day.
2. **Target Market:** Who are your customers? What are their needs? You've got to know exactly who buys from you, and how you can make their life better. That’s how you create demand, the driver of all economic growth. Newspapers' target market drifted to older people who weren't comfortable getting their news online.
3. **Competition:** Have you identified your real competitors? That's more than just similar products. It includes anything else your customer could do to meet the need you can fulfill. Newspapers thought their competition was other newspapers until they realized it was the internet. They didn't know how to compete with a news provider that was instant and free. To be successful, you need to be able to articulate the benefit you provide to your target market that's better than the competition. That is your competitive advantage.

### 2.1.2.18 Service Quality (SQ)

Service quality is an achievement in customer service and how it reflects at each service encounter. Customers form service expectations from past experiences, word of mouth and marketing communications. It is an assessment of how well a delivered service conforms to the customer or client's expectations. Service business operators often assess the service quality provided to their customers in order to improve their service, to quickly identify problems, and to better assess customer or client satisfaction. Customers compare perceived service with expected service, and which if the former falls short of the latter the customers are disappointed.

Service quality in its modern conceptualization refers to a comparison of perceived expectations of a service with perceived performance, giving rise to the equation SQ = P - E. This conceptualization of service quality has its origins in the expectancy - disconfirmation paradigm (Lewis & Booms, 1983, Oliver, Balakrishnan & Barry 1994). Quality of service refers to a network’s ability to achieve maximum bandwidth and deal with other network performance elements like latency, error rate and uptime. Quality of service also involves controlling and managing network resources by setting priorities for specific types of data (video, audio, files) on the network. Quality of service is exclusively applied to network traffic generated for video on demand, IPTV, VoIP, streaming media, videoconferencing and online gaming (Techopedia, 2018).

Service delivery can be taken to be an outcome of performance depending on the context in which it is used (Ayen, 2002). Samuel (2002), service can be expressed in terms of capacity to deliver desired services and from which customers get satisfaction. A service delivery gap is that gap between the established delivery standards and the actual service delivered (Crosby, 2000). It is an inconsistency between service design/quality specifications and the actual service quality by the service delivery system. Effective engagement between citizens, service providers and elected representatives is essential to democratic service delivery. A

business with high service quality will meet or exceed customer expectations at the same time as remaining economically competitive. Improved service quality increases profitability and long term economic competitiveness. Improvements to service quality may be achieved by improving operational processes; identifying problems quickly and systematically; establishing valid and reliable service performance measures and measuring customer satisfaction and other performance outcomes (ASQ the Global Voice of Quality, 2018).

Service quality was seen as having two basic dimensions;

i. **Technical Quality:** What the customer receives as a result of interactions with the service firm.

ii. **Functional Quality**: How the customer receives the service; the expressive nature of the service delivery. For instance; courtesy, attentiveness, promptness.

ICT services quality is the practice of ensuring and managing the quality of IT services delivered and utilized within an organization. It is a broad term that includes a number of different techniques and processes to ensure that ICT services meet or exceed the desired quality standard. ICT service quality management utilizes key quality indicators to measure, monitor and maintain the quality of IT services. Some of the key components of IT service quality management are: quality of software services, quality of network / Internet services, user experience and quality of hardware services.

As Internet users continue to grow, network performance requirements must increase right along with them. Many of the latest online services require high amounts of bandwidth and network performance. Network performance is an element of concern both for the user and the service provider. Internet service providers need to apply techniques and technologies to provide the best service possible before their competitors beat them to it (Techopedia, 2018).

The primary goal of quality of service is to provide priority to networks, including dedicated bandwidth, controlled jitter, low latency and improved loss characteristics. Its technologies

supply the elemental building blocks that will be used for future business applications in campus, wide area networks and service provider networks (Techopedia, 2018).

There are three fundamental components for basic quality of service implementation: Identification and marking techniques for coordinating quality of service from end to end between network elements, quality of service within a single network element and quality of service policy, management, and accounting functions to control and administer end -to - end traffic across a network (Techopedia, 2018).

The seven dimensions of service quality according to Muhammed (2011) are;

i. **Tangibility** - This includes physical facilities, equipment, employees' dress, and communication material.
ii. **Reliability** - This refers to the ability to perform promised services accurately and sincerely.
iii. **Responsiveness** - This refers to willingness to help customers and to provide prompt services.
iv. **Assurance** - This refers to the knowledge and courtesy of the employee and their ability to inspire trust and confidence.
v. **Empathy** - This covers individualized attention of the firm to its customers.
vi. **Network Quality** - This refers to the strength of the network and call quality.
vii. **Competitive Advantage** - This refers to the provision of better price, services, and promotions than its competitors.

**2.1.2.19 Relationship Strategic Orientation and Entrepreneurial Development**

Strategic is the way in which a firm adapts to its external and internal environment in order to have competitive advantage and survive in the midst of other firms. It is perceives as the pattern of reaction that a firm makes to its operating environment so as influence organizational performance and acquire more competitive edge over other firms within the work environment. Strategic orientation determines the extent at which a firm is capable to

utilize implement and achieve its entrepreneurial development goals' within a specific period. Strategic orientation is the engine in which entrepreneurial development revolves.

Entrepreneurial development cannot be achieved without full implementation of strategic orientation in the ITC firms.

Entrepreneurship is the ability and willingness to develop organize and manage a business venture along with any of its risks in order to make profit. Entrepreneurial development is the productive transformation and the ability to identify business opportunities, harness the necessary resources in order to produce goods or services that will influence the market.

Entrepreneurial development depends on the level of strategic orientation of the ICT firms.

Although every ICT firm gears toward entrepreneurial development in order to survive and compete favourably but this can only be attain through strategic orientation.

**2.1.2.20 Performance**

Performance comprises the actual output or results of an organization as measured against its intended output. Organizational performance involves the recurring activities to establish organizational goals, monitor progress towards the goals and make adjustments to achieve those goals more effectively and efficiently (Richard, 2009). Richard (2009) Performance encompasses three specific areas of firm outcomes: (a) financial performance (profits, return on assets, return on investment, etc) (b) Product market performance (sales, market share, etc) (c) Shareholders return (total shareholder return, economics value added, etc.) Mahapatro, (2011) performance is the ability of an organization to fulfill its mission through sound management, strong governance and a persistence rededication to achieving results.

Richard (2009), states that the following are the reasons for measuring organizational performance;

**i.** It improves the bottom line by reducing process cost and improving productivity and effectiveness

**ii.** A performance measurement system such as the balance scorecard allows an agency to align its corporate activities to the corporate plan.

**iii.** Measurement of process efficiency provides a rational basis for selecting what business process improvements to make first.

**iv.** It allows managers to identify best practices in an organization and expand their usage elsewhere.

**2.1.2.21 Entrepreneurship Development in Nigeria**

The origin of the word entrepreneurship is French. This word is equivalent of French Enterprendre and English undertake that was translated to Entrepreneurship in English by John Stewart Mill. Entrepreneurship is the process of starting a business or other organization. The entrepreneur develops a business model, acquires the human and other required resources, and is fully responsible for its success or failure. Entrepreneurship operates within an entrepreneurship ecosystem.

Entrepreneurship development refers to the process of enhancing entrepreneurial skills and knowledge through structured training and institution - building programmes (UNDP, 2010). Entrepreneurship development aims to enlarge the base of entrepreneurs in order to hasten the pace at which new ventures are created. This accelerates employment generations and economic development. Entrepreneurial development focuses on the individual who wishes to start or expand a business. Additionally, entrepreneurship development concentrates more on growth potential and innovation. Essentially, this means the acquisition of skills that will enable an entrepreneur to function appropriately and adequately in terms of;

i. Attaining present result based on previous decisions and planning, based on present circumstance.

ii. Maintaining and developing the organized capability which makes achievement possible, and

iii. Coordinating the specialist functions that should enable a firm to perform the technical task in marketing, personnel, research and development, manufacturing, finance and control, especially in the face of changing technology and dynamic industry trend.

To perform these functions, the entrepreneurial development process, procedures and skill acquisition must entrench certain skills. These include conceptual skills, human skills and technical skills, which will transform the entrepreneur into a taskmaster, mediator and motivator (Osemeke, 2012).

UNDP (2010) describe entrepreneurship development as referring to the process of enhancing entrepreneurial skills and knowledge through structured training and institution-building programmes. According to UNDP, ED aims to enlarge the base of entrepreneurs in order to hasten the pace at which new ventures are created. This accelerates employment generation and economic development. Entrepreneurship development focuses on the individual who wishes to start or expand a business. Furthermore, entrepreneurship development concentrates more on growth potential and innovation.

Studies by Melfrad & Piffaz (2004) revealed that successful entrepreneurship development in ICT depends on the relevance of ICT infrastructure, technical skills and user time and therefore organizations with higher levels of technological capability show the likelihood to innovation. Technology relate to ICT infrastructures, internet skills and e-commerce knowledge. ICT infrastructure provides a platform upon which e-commerce is built. Internet skills offer the technical knowledge needed to develop entrepreneurial applications (Manny et al, 2008; Zhy et al, 2002; Zhu & Kraemer, 2002). By implications, technology capability goes beyond physical assets to include intangible resources, which perhaps generate competitive advantages for entrepreneurs. Entrepreneurial skills development and team-based entrepreneurial activities are the primary determinants of ICT entrepreneurship development in an organization. However, experimental activities in terms of testing and prototyping, access to resources, coaching and experience sharing is a key construct that determine ICT

entrepreneurship development. Entrepreneurship is crucial for economic development around the World. In nations such as Nigeria, Egypt and Indonesia, micro - entrepreneurs generate 38% of the gross domestic product. Analysis from the World Bank in 2011 indicates that small businesses create a disproportionate share of new jobs. They generate new ideas, new business models, and new ways of selling goods and services (Lee-Roy, 2013).

Wireless technology and ICT infrastructure development is also vital for entrepreneurship and small business development. In many emerging nations, it is a major challenge to gain access to capital and market information. Developing nations specifically do not have functioning infrastructure or much in the way of financial resources (Lee-Roy, 2013).

There are enormous opportunities for ICT manufacturing and development in Nigeria if it is properly harnessed. The ICT sectors have the potentials of creating millions of job for our unemployed youths, reduce cost of ICT acquisition, reduce capital flight, enhance the quality of locally produced ICT infrastructure and increases government revenue (NITDA, 2017).

**2.1.2.22 Indicators of ICT Development in Nigeria**

**Table: 2 ICT Indicators**

| S/No | Indicators | Percentage/Numbers |
|---|---|---|
| **1.** | Individual Access to Mobile Telephones in Nigeria | **1.5% 146 Million** |
| **2.** | Individual Ownership of Mobile Handsets | **43.6%** |
| **3.** | Household Ownership of Mobile Telephones | **59% (Representing 70.6% of those with access)** |
| **4.** | Active Mobile Phone | **148 Million** |
| **5.** | Access to Fixed Telephony | **0.4%** |
| **6.** | Access to Computers | **4.5%** |
| **7** | Television Access | **67.6%** |
| **8.** | Radio Access | **41.2%** |
| **9.** | Ownership of Radio | **41.2%** |
| **10.** | Internet Access | **100.9 Million 6.5%** |
| **11.** | Broadcasting Stations in Operation Nationwide | **291** |
| **12.** | Broadband Penetration | **23%** |

| | | |
|---|---|---|
| **13** | Base Transmitter Stations in Nigeria | **45,000** |
| **14.** | Post Offices including Postal Agencies and Post Shops | **2,015** |
| **15.** | Licensed Courier Companies | **250** |
| **16.** | People Employed in Communication Sector | **4.969 Million – 1,124 (Female) -3.845 (Male)** |

**Source:** Adapted from NBS, NCC & ITU (2018).

ICT have been globally acknowledged as the foundation for transformation to a knowledge - based economy. It is also widely acknowledged that ICT infrastructure is an enabler for economic and social growth & development in the digital economy. ICT has the potential of enabling entire new industries and introducing significant efficiencies into education delivery, health care provision, energy management, ensuring public safety (security), government/citizen interaction, and the overall organization and dissemination of knowledge. The importance of ICT (internet) to national development is a key factor. It has been empirically proven that every 10% increase in broadband penetration in developing countries results in a commensurate increase of 1.3% in GDP. The most credible statistics on broadband penetration estimate that Nigeria's broadband penetration is between 4% and 6%, further underscoring the need for Nigeria to give strategic importance to the development of broadband infrastructure.

**2.1.2.23 Information and Communications Technology (ICT)**

Information Communication Technology is the combination of three different words, which are information; meaning message, communication; meaning connection or passage and technology; which means a device or material with electronic instructions created by a person's mind and assembled in a way that it does not look natural.

Information and Communications Technology is an umbrella term that includes any communication device or application, encompassing radio, television, cellular phones, computer and network hardware and software, satellite systems, as well as the various services and applications associated with them, such as videoconferencing and distance

learning (MCT, 2012). Information and communications technology (ICT) refers to all the technology used to handle telecommunications, broadcast media, intelligent building management systems, audiovisual processing and transmission systems, and network-based control and monitoring functions (Technopedia, 2018).

Information and communication technology (ICT) offer increased potential for advancing progress towards economic and social development objectives of any economy. The worldwide spread of mobile telephony and communication systems, the growth of internet networks and widespread use of a broadband infrastructure have an impact on international production and trade patterns. At the same time, benefits from new ICTs cannot be taken for granted in this twenty first century (UNCTAD, 2018).

The rising globalization driven by ICT makes it very important for Nigeria as an emerging market to irreversibly consider the application and promotion of ICT strategy to facilitate its rapid growth and development. This will involve the development of a vibrant ICT sector to drive and expand the national production frontiers in agriculture, manufacturing and service sectors. It would also require the application of the new knowledge to drive other soft sectors: governance, entertainments, public services, media sector, tourism and etcetera.

Technological progress is a driving force behind economic growth, citizen engagement, and job creation. Information and communication technologies (ICTs), in particular, are reshaping many aspects of the World's economies, governments, and societies (World Bank, 2017). Access to the Internet has become a vital development tool in the twenty first century. The Fourth Industrial Revolution is a digital revolution that requires universal and reliable Internet access; without it, many developing countries will not be able to fully participate in an increasingly mobile and digital-based economy. Public officials, businesses, and citizens in developing countries can harness the transformative power of ICTs to provide more efficient services, catalyze economic growth, economic development, innovativeness, entrepreneurship and strengthen social networks. Nine five percent (95%) of the global

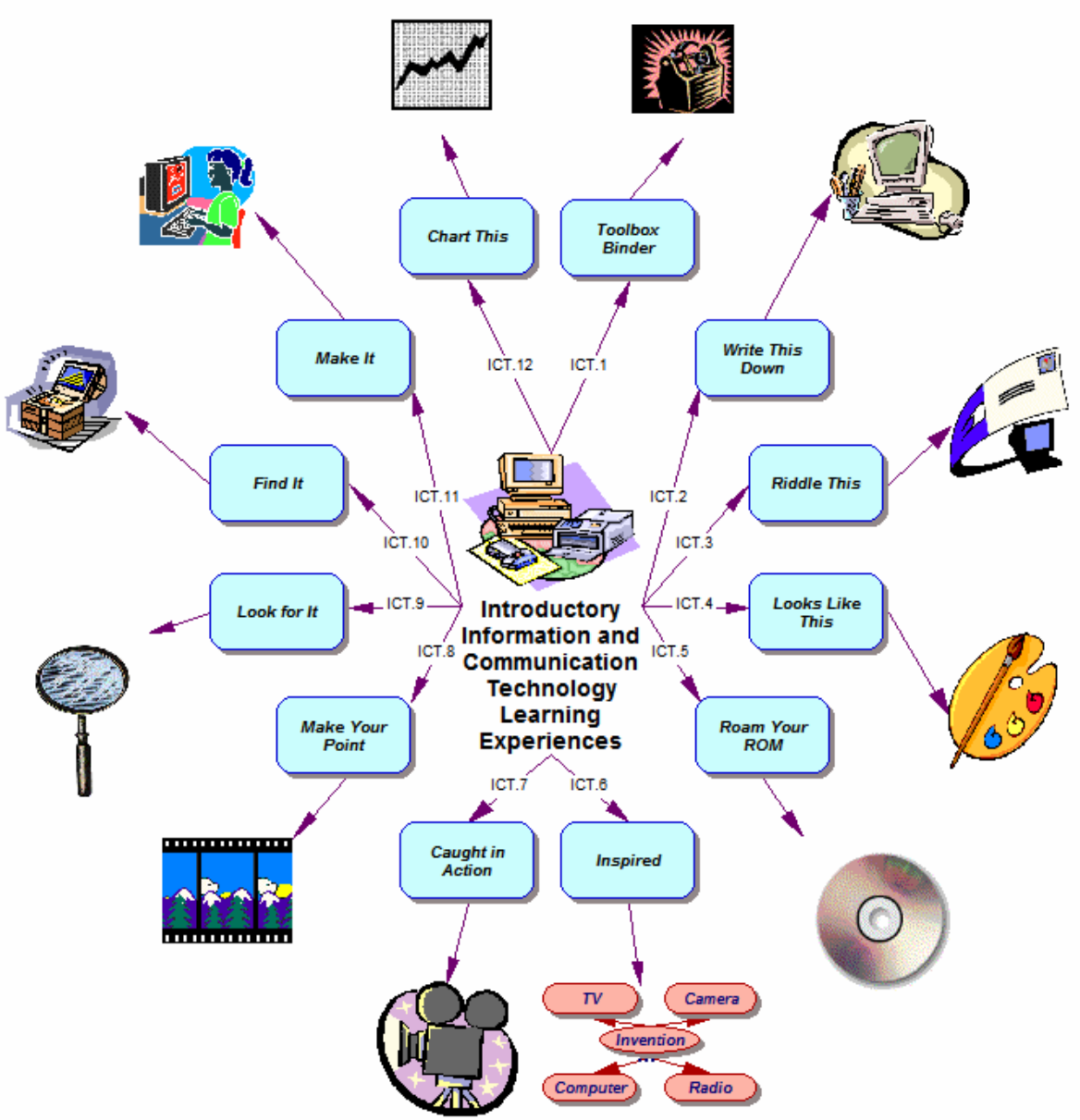
populations now live in an area that is covered by a mobile-cellular network. In Tanzania, for instance, mobile money agents now outnumber all other financial intermediaries by a factor of 10 to 1. More than half of Tanzanians living on less than $2 a day have access to mobile technology.

But even though the digital revolution is a global phenomenon, there are still huge disparities between and within countries when it comes to the penetration, affordability, and performance of ICT services. While almost half of the World's population in 2016 had access to the Internet, the penetration rate in the least developed countries was only 15%, or 1 in 7 individuals.

One contributing factor is that access to the Internet through mobile or fixed broadband remains prohibitively expensive in many developing countries, where lack of ICT infrastructure and regulatory bottlenecks hamper broadband development. As of December 2015, the cost of mobile-broadband services amounted to about 17% of the average monthly Gross National Income (GNI) per capita in the least developed countries, compared to just 5% globally. The speed of broadband services also varies. Fixed-broadband speeds of 10 Mbit/s and higher are common in developed countries; by contrast, in the LDCs, only 7% of fixed-broadband services reach 10Mbit/s. Under SDG #9, the world set an ambitious target to significantly increase access to information and communications technology and strive to provide universal and affordable access to the Internet in least developed countries by 2020. It is clear that governments, the private sector, and the international community have a lot to do to reach this target and bridge the digital divide.

But progress is possible. Effective ICT policy reform can trigger greater private investment in broadband infrastructure and make Internet access more affordable. Governments can also ensure fair taxation for the telecom industry, and use universal service funds to focus on broadband rollout, in partnership with others and under open access principles to develop healthy competition. These efforts will directly support poverty reduction and shared

prosperity. World Bank Last Updated: Sep 27, 2017. Making ICT work for development requires more than expanding the infrastructure. In order to foster productive and inclusive use of ICTs Governments need to create legal, institutional and policy frameworks and generate the necessary skills in government, business and civil society (UNCTAD, 2018).




**Source:** Adapted from Technopedia, (2018).

### 2.1.2.24 Information and Communications Technology Development Levels and Tools

1. **Traditional ICT:** Examples of traditional ICT are; printed media, books newspaper, journals, television, radio, etc.
2. **Modern ICT:** Examples of modern ICT are Computers, phones, internet, GPS network, etc

**3. Information and Communications Technology Tools**

ICT tools comprise of digital infrastructure like computers, desktops, labtops, printers, data projector, scanner, software and hardware programmes etc.

**4. Impact of Information and Communications Technology**

A. Faster Communication B. Faster Information Sharing and C. Paperless Environment

**2.1.2.25 Historical Evolution of ICT Development in Nigeria**

The development of ICT infrastructure in Nigeria dates as far back as 1886, when the first telegraphic submarine cable was laid by a British firm known as Cable & Wireless Ltd, to connect Lagos and the Colonial office in London (NCC, 2014). In spite of ICT long history, the telecommunications sector in Nigeria until the late 1990s was one of the most undeveloped in Africa and indeed, in the Globe. Quite a lot of factors accounted for the low & slow development of ICT infrastructure in Nigeria. The most prominent being the dominance of the sector by the State-run monopoly, Nigerian Telecommunications Limited (NITEL).

The growth of Nigeria's telecommunications sector under NITEL's monopoly was constrained by numerous challenges including, but not limited to, inadequate capacity (infrastructure); especially insufficient number of lines and trunks, low revenue-generation capacity, poor facility, lack of maintenance culture, slow response to advances in technology and underfunding. As a result, NITEL could not cope with the responsibility of providing telecommunication services in Nigeria, leading to the decision to deregulate the telecommunication sector (MCT, 2012).

**ii. Deregulation of Nigerian Telecommunication Sector**

The ground work, greater impetus and effort to deregulate and liberalize the sector commenced with the promulgation of the first Nigerian Communications Commission Act (Decree 75), in November 1992 and the subsequent inauguration of the first board of the Nigerian Communications Commission (NCC) in 1993. With this, efforts to liberalize

Nigeria's telecommunication sector gained full impetus setting the stage for the licensing of key private operators and the dismantling of NITEL‟s monopoly (MCT, 2012).This effort did not bear much fruit as the law had a limiting effect on the liberalization of the sector. Decree 75 still allowed NITEL to retain its monopoly over the fixedwire line systems, Long Distance Transmission services and International Gateway services, thereby retaining its sole national carrier status (Ndukwe, 2011). On the other hand, due to the fact that the nation was under a military government during the first seven years of its life, the Commission did not have the necessary freedom and powers to carry out its functions. The rules of the game were not clear and the regulatory body that was to act as referee neither had the autonomy or the resources to guarantee a predictable market place for potential investors. Of course the investors kept away.

**2.1.2.26 Sub-Sector of Information and Communications Technology in Nigeria**

**1. Telecommunication Sector**

Telecommunications also known as telecom refers to the exchange of information over significant distances by electronic means and refers to all types of voice, data and video transmission. This is a broad term that includes a wide range of information transmitting technologies such as telephones (wired and wireless), microwave communications, fiber optics, satellites, radio and television broadcasting, the internet and telegraphs (Margaret, 2016). Communication is the art of transferring information from one place to another. This comes in form of sharing and exchange or broadcasting.

Telecommunications remains a vital engine for development of any economy; it is an essential infrastructural component that promotes the development of other sectors including agriculture, education, industry, health, banking, defence, transportation and tourism (Ndukwe, 2O11). There has been remarkable advancement in the development of the telecommunications (telephony) sector in Nigeria, particularly since the beginning of mobile services using GSM technology in 2001. Nigeria in recent years has been adjudged as the

fastest growing mobile market in Africa and one of the fastest in the World (MCT, 2012).With the liberalization of the industry in the year 2000, several services and licenses have been introduced into the sector. These include;

i. Fixed Telephony;

ii. Cellular Mobile Telephony;

iii. Long Distance Transmission;

iv. Global Mobile Personal Communications Services;

v. International Data Access;

vi. High Speed Data Transmission;

vii. Value Added Services;

viii. Internet Service; and

ix. Unified Access Service License.

**2. Information Technology (IT) Sector**

Information Technology is a term that encompasses all forms of technology used to create, store, exchange, and use information in its various forms (business data, voice conversations, still images, motion pictures, multimedia presentations, and other forms, including those no yet conceived). It is a convenient term for including both telephony and computer technology in the same word. Information is a knowledge that you get about somebody or thing. It is also facts or deduce about a subject. It could be data in digital form or data on paper. Technology is a means by which we transfer or communicate information.

Information technology accurately refers to any development that mainly involves computer - based information systems comprising software applications and the computer hardware.

IT describes an organization's computing and telecommunications hardware and software technologies that provide automatic means of handling and communicating information. From the above definition, two possible divisions of IT could be drawn: i. Computer (an electronic device that can process and store information) vs. telecommunications

(transmission of information between devices in different locations). ii. Hardware (the physical equipment) vs. software (the instructions) (Richard & Alemayehu, 2004). It is the second categorization that will be used for further exploration of IT below, together with exploring the data that is handled by IT.

The promulgation of the indigenization decree in 1977 led to the increase in the number of indigenous vendors in the computer business and stimulated more aggressive marketing by the vendors which in turn resulted in a significant increase in the number of computer installations and usage in the country (MCT, 2012). Prior to 1999, development in the IT sector of Nigeria was minimal. For example, regular internet users were less than 200,000 out of a population of over One Hundred and Twenty Million (MCT, 2012). The Federal Government therefore embarked on major reforms in the sector which included: i. Development and launch of National Policy on Information Technology in 2001 and the establishment of NITDA to implement the policy, coordinate, and regulate information technology development in the country. ii. Establishment of the Nigeria Internet Registration Association (NIRA) in 2006 to increase Nigeria's presence in the cyberspace.

The hardware market in Nigeria is shared between multinationals and about five local Original Equipment Manufacturers (OEMs), with approximately 90% of the software used in Nigeria being imported. On the other hand, efforts are being made to encourage the patronage of "Made in Nigeria Software" to save the country from the huge foreign exchange being expended on foreign software annually (NITDA, 2017).

Government initiatives and policies have led to the creation of the requisite enabling environment thereby leading to both local and foreign direct investment in IT development in Nigeria. Prices of IT equipment and services have fallen considerably. Theses make services and equipment available to more Nigerians as well as enable access to online information (MCT, 2012).

### 3. Postal Services Sector

Postal services are services involving the clearance, sorting, transport and distribution of postal items. All postal service providers are subject to the postal legislation, whether they provide universal or non-universal postal services. Postal items are letter post, books, catalogues, newspapers, periodicals and postal parcels containing goods with or without commercial value are also considered to be "postal items" provided they are addressed.

Nigerian Postal Service (NIPOST) is the dominant operator and regulator of the postal service sector. It provides untapped possibilities as a vehicle for socio-economic inclusion and digital access. It has a network of 1,065 post offices and more than 3,000 additional postal agencies distributed nationwide in 547 of the 774 local government areas in Nigeria (MCT, 2012). This wide network penetration into rural areas along with the variety of services offered, have enabled NIPOST to serve as a tool for the promotion of social, financial and digital inclusion (MCT, 2012). There are over 250 licensed courier operators in the country, in addition to a large number of courier grey market operators. As at the end of 2010 the annual turnover of the industry was over Three Hundred and Fifty Billion Naira (#350,000,000,000). However, the dual role of NIPOST as a regulator and operator compromises its effectiveness. Strategic goal would be to create an all-inclusive sector which will explore key under-utilized and potentially game-changing assets through NIPOST.

### 4. Broadcasting Sector

Broadcasting mean radio or television communication, whether in sound or visual format, transmitted from a source and for reception by members of the public or group. Digital Broadcasting is the practice of using digital data rather than analogue waveforms to carry broadcasts over television channels or assigned radio frequency bands. It is becoming increasingly popular for television usage (especially satellite television) but is having a slower (MCT, 2012).

Broadcasting plays a very important role in the lives of the citizens worldwide and is the most effective means of reaching the largest number of people simultaneously. The Federal, Regional and State governments monopolized broadcasting in Nigeria, until the promulgation of Decree 38 of 1992 (as amended) which established the National Broadcasting Commission (NBC) and charged it with the responsibility of liberalizing and regulating the broadcasting industry in the country (MCT, 2012). The law empowers the Commission to license broadcast stations, allocate frequencies, regulate content and, generally set standards for quality broadcasting in the country. The categories of broadcasting services include;

i. Terrestrial and Satellite free-to-air sound/television;

ii. Satellite subscription direct-to-home sound broadcasting;

iii. Community broadcasting;

iv. Content distribution service (syndication); and

v. Internet broadcast

**2.1.2.27 ICT Policy and Regulatory Environment in Nigeria**

ICT in Nigeria is currently administered under three main policy documents: the National Mass Communication Policy of 1990, the National Telecommunications Policy of 2000, and the National Policy for Information Technology of 2000. These documents, as well as other disparate ICT policies and government pronouncements, will potentially be consolidated in terms of new policy currently at the draft stage: the draft National ICT Policy of 2012, released in January 2012 by the Ministry of Communication Technology (MCT). This draft National

ICT Policy articulates the nation's ICT objective as a knowledge-based globally competitive society by 2020(Ministerial Committee on ICT Policy Harmonization, 2012, p. 12). Towards achievement of this objective, the draft Policy provides for 16 policy focus areas, and ambitiously lists 103 strategic actions which the government proposes to undertake. The 16 focus areas include infrastructure development, broadband access, spectrum management,

regional collaboration, universal access, research, national security, software and hardware, and local manufacturing. According to the draft Policy, these strategic actions would be carried out through an expanded Ministry, responsible for ICT, which would become the coordinating ministry responsible for all ICT development and oversight in Nigeria. In addition, there would be elimination of the current multiple regulatory bodies, and creation of a converged regulator to oversee the entire ICT sector –with the converged regulator under the direction of the expanded Ministry.

The draft National ICT Policy is, thus, highly inspirational – but at the same time, the document is not completely clear on how the government would implement all of its high ambitions, and is silent on a number of important issues, including standards, open data, accessibility and competition. And there is suggestion in the draft Policy that the regulatory autonomy guaranteed for the Nigerian Communications Commission (NCC) – and, to a lesser extent, the National Broadcasting Commission (NBC) – under the old institutional arrangements would, if the draft

Policy is approved, be limited or even abolished. The implications for industry of such a proposal, given the levels of bureaucracy within the public service, are of concern. If this draft Policy is approved in its present form (it presently awaits the approval of the Federal Executive Council), and implemented by law requiring a converged regulator to report directly to the Minister, then the independence of industry regulation, and the gains of a deregulated market, could be at risk. Also of concern in the draft Policy is its call for retention of state financial interest in communications companies.

The draft Policy seems to have been developed by bureaucrats without public or industry consultation, and some of its provisions, as just outlined, go against the spirit of reform that has been driving the transformation of Nigeria's ICT sector. It remains to be seen whether the draft Policy will go forward and see the light of day as official policy, bearing in mind the public stance of the NCC, which has said that while it favours a "common and harmonized

law" it does not favour establishment of a single regulator for all ICT matters (All Africa, 2012).

**2.1.2.28 Regulatory Framework for ICT Regulation in Nigeria**

Under the draft ICT Policy of 2012, all but one of the current entities responsible for ICT policy formulation, Implementation and regulation would report to the Minister of the expanded Ministry of ICT. The expanded Ministry would coordinate and monitor the implementation of government's ICT policies; seek to promote the use and development of technology; and become the coordinating ministry for ICT regulation in Nigeria. The one existing agency that would remain fully independent of the expanded Ministry is the National Space Research and Development Agency (NASRDA).

The seven entities listed below would all, in terms of the draft Policy of 2012, report directly to the expanded Ministry;

1. **Nigerian Communications Commission (NCC):** The NCC regulates the Nigerian telecommunications industry and has, until now, had wide discretionary powers to license operators, encourage competition, monitor tariffs and quality of service, protect consumers, and generally promote affordable services (Odufuwa, 2012).
2. **Nigeria Broadcasting Commission (NBC):** The NBC regulates the broadcast industry and does this by issuing licenses, assigning broadcast frequencies, setting standards, and monitoring compliance with the broadcast code. Under existing laws, the NBC reports to the Presidency through the Ministry of Information, but would, according to the draft Policy of 2012, now be merged with the NCC and directly supervised by the expanded Ministry for ICT.
3. **National Information Technology Development Agency (NITDA):** Established by the NITDA Act 2007, this Agency has, until now, been implementing the National IT Policy of 2001, on behalf of government, as an agency empowered to plan, promote and develop IT penetration and projects (Odufuwa, 2012).

4. **National Frequency Management Council (NFMC):** The NFMC is the manager of radio frequency spectrum in Nigeria and is responsible for policies, planning, coordination and wholesale allocation of spectrum to other ICT regulatory bodies. The NFMC consists of representatives of the Ministries of Aviation, Transport, and Science and Technology, and of the NCC, the NBC and the State Security Service. It meets quarterly, with the Minister of Communication Technology serving as Chair. (Odufuwa, 2012).

**5.** **The Universal Service Provision Fund (USPF):** Set up under the National Communications Act of 2003, the USPF is designed to ensure equitable service provisioning across the nation. The Fund works with private operators to deliver communications equipment and networks to unserved and underserved communities. The NCC levies 5% of operators' annual revenues as statutory fees, 40% of which is then passed on to the USPF to go towards universal service and access initiatives.

6. **Nigerian Internet Registration Association (NiRA):** NiRA is the official manager of the .ng domain.

7. **Nigeria Communications Satellite (NIGCOMSAT)**: NIGCOMSAT Ltd. is the state-owned commercial manager of the country's communications satellite NigComSat-1R, and of Galaxy Backbone Ltd., the mandated provider of connectivity and enterprise applications to the public sector. NIGCOMSAT and Galaxy Backbone are government-owned, limited liability companies.

**2.1.2.29 Entrepreneurial Development of Local ICT (Made in Nigeria)**

Information and Communication Technology is an essential part of national infrastructure and factors greatly in both public and private sector business enterprises. It creates business opportunities, especially for companies located far from city centres, and improves links among firms, suppliers and clients. When used well, ICT can also make management and operation more efficient (Nwabueze & Ozioko, 2005).

ICT could be used to influence Local Content Development in Nigeria from a two divided approach - through the Software and Hardware development by indigenous ICT firms. ICT local content is grossly underdeveloped in Nigeria. This has resulted in over-dependence on foreign importation of software and hardware, and diminished opportunity for entrepreneurial development, economic empowerment and capacity building within the context of ICT. In addition, there has been the considerable drain on Nigeria's foreign exchange. as a result, urgent efforts must be put in place to remedy this situation.

**i. Software and Local Software Development in Nigeria**

Software refers to a collection of computer programs and associated data that provides the instructions for telling a computer what to do, and how to do it in order to achieve particular outcomes (MCT, 2012). Software's are directed to perform each operation by a set of instructions, which define the operation to be performed, and the data or device needed to carry it out in a computer. The various types of sequence of instructions, which are actually put into the computer to perform a given task, are collectively known as software (program) (Richard & Alemayehu, 2004). Software is intangible; we can only see the hardware on which it is carried. To use an analogy, our brain (a physical organ of the body) represents hardware but our ideas (which can be communicated but never seen or touched) represent software

The software industry is a multi-billion dollar industry and Nigeria can benefit tremendously from developing its own domestic or local grown software industry to create applications for aspect of human endeavour including Electronic Agriculture (e-Agriculture), Electronic Business (e-Business), Electronic Education (eLearning), Electronic Governance (e-Government), Electronic Health (e-Health) etc. This can cater for both local (domestic) and international export markets. The sector has received limited support from Government and has generally faced the challenge of scarcity of indigenous capacity, and intense foreign

competition from the multinational corporations. There is need for Government to create an enabling environment to encourage private sector software innovation and development.

**ii. Hardware and Local Hardware Development in Nigeria**

Hardware refers to the physical interconnections, systems and devices required to store and execute software programs. Hardware is also seen the physical components that make up any set of information technology. Hardware represents any part of information technology that you can drop on your foot: the keyboard, monitor, disks, processors, printers, network cables, etc (Richard & Alemayehu, 2004). To provide an understanding of the different types of IT hardware, a process view of an information system is relevant. Information systems involve the input, process, storage, output and transmission of data and information. In an IT based IS each of these activities are associated with a certain form of IT.

**iii. Sub-Marine Cables Development in Nigeria**

Since 2010, there has been a massive 2,705% increase in the wholesale submarine bandwidth capacity available to Nigerian telecommunications operators, due to the launch of three new undersea cable systems with landing points into Lagos. MainOne (2010), Glo-1 (2011) and WACS (2012), with a combined capacity of 9.54 tbps, have the potential to change the landscape of internet service provisioning and data connectivity in Nigeria through lowered wholesale international bandwidth prices and higher speeds. All three of these submarine systems are promoted by private corporations and are reporting strong post-launch capacity sales. Prior to 2010, Nigerian operators had been heavily dependent on VSAT systems and NITEL's notorious SAT3 for bandwidth. (SAT3 was the de facto monopoly submarine cable system, and was generally expensive and unreliable.) Since the introduction of the new systems, there appears to be competition in wholesale international bandwidth pricing for internet services and discernible improvements in bandwidth speeds. There is also increased variety in the range of available internet products/solutions, whether delivered by traditional ISPs or mobile operators (Odufuwa, 2012).

**iv. Communication Satellites Development in Nigeria**

Nigeria has one communications satellite in orbit, the geostationary NigComSat-1R, which was launched into space in December 2011 to replace NigComSat-1 (which was lost to power failure while in orbit in 2008). The US$250 million NigComSat-1R is managed by the aforementioned state-owned NIGCOMSAT, and offers, through its 40 transponders, voice, video and data transmissions on a wholesale commercial basis to telecoms operators and broadcast companies across its footprint. NigComSat is currently regulated by the NCC and NBC, and is developing two additional satellites for launch in 2013 (Odufuwa, 2012).

**v. Mobile Money Development in Nigeria**

Mobile money, enabling users to pay for goods and services with their mobile phones, is at an embryonic stage in Nigeria. In August 2011, as part of its Cashless Nigeria programme, the Central Bank licensed 16 private companies to sell mobile money products in the country. Of these new players, only Stanbic IBTC, GTBank, PocketMoni, United Bank of Africa, EcoBank, FirstBank and Pagatech commenced operations during the period, up to the end of 2012, covered by this report. Constraints affecting the remaining licensees include capitalization, infrastructure, marketing and technology – and perhaps the license framework, as the buoyant mobile GSM operators were inexplicably excluded from the scheme by the Central Bank. The NCC has announced its intention to develop a mobile money regulatory framework that would include mobile operators, as it is these operators that appear to have the subscribers, platforms and liquidity necessary to successfully deliver mobile money solutions (Odufuwa, 2012).

**vi. Electronic Government (E-Government) Applications Development in Nigeria**

Promoted by NITDA, by the state-owned/mandated public sector ICT provider Galaxy Backbone, and by private vendors, e-government is still in its infancy in Nigeria. In 2008, the government implemented public-sector reforms, in conjunction with the World Bank, in order to increase accountability and transparency, and one such reform was the instituting of

electronic payments for all transactions done by the civil service (for salaries, procurements and contracts). Another, and arguably the most successful, application of e-government in Nigeria is the national matriculation examination results release conducted annually by the Joint Admissions and Matriculation Board (JAMB). Prior to the implementation of the e-government website by JAMB, candidates – who often exceed 1 million in number in a single year - did not get their results until several months after the results were released because the results were sent by surface post. Via the online system now in place, candidates can check results, using prepaid scratch cards, within eight days of the examination (Odufuwa, 2012).

Other notable applications of e-government include the electronic verification of vehicle and drivers' licenses by traffic police at the Federal Capital Territory; GIS mapping of land allocations; the Automated System for Customs Data (ASYCUDA) computerization project of the Nigerian Customs Service; online checking of postings under the National Youth Service Corp Programme; and the Growth Enhancement Support initiative of the Ministry of Agriculture (which aims to distribute 10 million mobile phones to farmers by 2013 so that they can receive fertilizer and seeds). If the Growth Enhancement Support programme succeeds, Nigeria would become the first country in Africa to use electronic wallets to connect farmers with inputs (African Farming and Food Processing, 2012).

**2.1.2.30 Broadband and Broadband Development in Nigeria**

Broadband technology has emerged as the natural next step in Internet Evolution and diffusion. With dialup connections limiting bandwidth and therefore, internet applications, broadband technology promises high speed and opens up a seemingly limitless gamut of possibilities (Langdale, 1997). Broadband is high - speed internet access technology and has often been defined in terms of data transmission speed (that is, the amount of data that can be transmitted across a network connection in a given period of time, typically one second, also known as the data transfer rate (NCC, 2018). The future of the internet is intertwined with broadband capabilities, involving the public, the industry and regulatory bodies.

Broadband is transmitted via a digital platform, meaning that text messages, images and sound (multimedia) are all transmitted as bits of data. Conventionally, the term broadband referred to high - speed communications networks that connected end-users at a data transfer speed greater than 256 Kbit/s. Global organizations have chosen to define it more in terms of an ecosystem. It has on the other hand been chosen to define broadband in a manner that reflects the user experience. As such, broadband within the Nigerian context is defined as an internet experience where the user can access the most demanding content in real time at a minimum speed of 1.5 Mbit/s (Presidential Committee on Broadband, 2012). Broadband access includes all technologies that enable the high - speed transfer of multimedia and high bandwidth information. According to Kirstein, Burney, Paxton and Bergstrom (2001), broadband can be defined as all flavors of high-speed digital voice, data and video services, as well as the underlying infrastructure, clients and technologies that enable these services. Specifically, the content of broadband is digital, the data transmission rate is at least 384Kbps, the level of interactivity allows the control and selection of content and packet-switched technology is used. The diffusion of technological innovation rests on traditional economic principles, ironically not applied to any activity associated with the new economy. The transmission technologies that make Broadband possible move these bits much quicker than the traditional telephone or wireless connections. Much of the internet content travels via fiber optic cables, particularly for long – haul transmission, this provides closed circuit transmissions with very large bandwidth and at very high transmission speeds.

**Some Types of Broadband**

The six most common modes of high-speed or broadband, connection to the Internet are as follows;

1. Fiber-optics Broadband (Fiber-to-the-Home)
2. Cable Broadband
3. Digital Subscriber Line (DSL)

4. Fixed Wireless Broadband

5. Satellite Broadband

6. 3G Wireless Broadband

**A. The Benefits of Broadband**

We live in a Global village where ICT has a direct impact on a Nation's ability to improve the economic development and wellbeing of her citizens and compete globally. Broadband is an essential infrastructure of the 21st Century. It enables access to business and job opportunities, improves healthcare, education and government services and facilitates social interactions. Broadband is to the 21st Century Information Age is what Electricity was to the Industrial Age. It has a significant transformative effect on how people live and work. It empowers the individual user with previously unimaginable capabilities and global reach. The Internet is the World's biggest library and largest repository of information and knowledge; while high speed access is critical to fully harnessing the benefits of the Internet (Presidential Committee on Broadband, 2012).

Other benefits of Broadband are as follows;

i. Broadband speeds are significantly faster than previous technologies, making it faster and more convenient to access information or conduct online transaction on the internet.

**B. The Challenges of Broadband Operators**

Challenges common to operators in the telecoms sector have been identified as; the high costs of right of way resulting in the high cost of leasing transmission infrastructure; long delays in the processing of permits; multiple taxation at Federal, State, and Local Government levels and having to deal with multiple regulatory bodies; damage to existing fiber infrastructure as a result of cable theft, road works and other operations and the lack of reliable, clean grid electricity supply (Presidential Committee on Broadband, 2012).

### 2.1.2.31 Effect of ICT on the Following Segment of the Economy in Nigeria

#### i. Employment Creation

Information and communication technology has played vital roles in the creation of employment and self employment opportunities in Nigeria ICT firms. Impacts can be direct, through growth of the ICT sector and ICT-using industries and indirect through multiplier effects. In economies increasingly dependent on ICT, individuals will benefit by having requisite ICT skills, thereby enhancing their opportunities for employment. Arguably, ICT can also lead to loss of employment as tasks are automated (UNCTAD, 2011).

Broadband penetration can increase employment generation in three ways (Katz, 2009). The first is the direct effect of jobs created in order to develop broadband infrastructure, the second is the indirect effects of employment creation in businesses that sell goods or services to businesses involved in creating broadband infrastructure and the third is induced effects in other areas of the economy. The second two ways can be expressed, through an input-output model, as multiplier effects. The relationship between broadband diffusion and employment through these mechanisms is a causal one, although the estimate of employment growth relies on a number of assumptions. The explosion of the volume of e-commerce transactions riding over ICT infrastructure has created of employment and wealth. Many young technology entrepreneurs are latching onto the opportunity, which is permitting businesses of all sizes to engage in commerce on anytime-anywhere basis.

#### ii. Business Operation

Positive macroeconomic impacts of ICT in terms of increase in productivity and growth can arise from the following sources (OECD, 2008):Increase in the size and productivity of the ICT sector, and associated effects such as growth in industries that provide inputs to ICT production; ICT investment across the economy, which contributes to capital deepening and leads to a rise in labour productivity; Multifactor productivity growth across the economy, which arises from the role of ICT in helping firms innovate and improve their overall

efficiency. A growing ICT sector can contribute to aggregate increase in productivity, GDP and trade.

**iii. Innovation**

Innovation is a large concept, defined by OECD and Eurostat (2005) as the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organizational method in business practices, workplace organization or external relations. Innovation can occur in all sectors of the economy, including government and higher education, and includes all forms of research and experimental development as (OECD, 2002).There are several relationships between innovation and ICT. The key determinant of business and macro-level productivity is innovation, especially organizational change. More broadly, there is clearly a strong impact of innovation, especially research and development, on the entrepreneurial development of ICT goods and services.

**iv. Education**

The availability of high speed internet in the 21st century has pushed learning beyond the confines of physical classrooms. The 21$^{st}$ century learning has gone beyond classrooms. Unlike traditional school systems which require face-to-face encounters between teachers and students, ICT makes it possible to deliver distance learning and the sharing of educational resources without physical get in touch with teacher. Some learning platforms are structured to provide meaningful interactive, real-time learning experience.

Increasing broadband penetration will expand access to educational opportunities at all levels. ICT connects students to teachers, parents and free educational resources. It also enables the sharing of curricula and other resources. Several studies suggest that impacts of broadband on education include;

i. Improved effectiveness of instruction and learning outcomes through more engaging, interactive activities;

ii. Enhanced access to a wide array of professional development opportunities for educators and adult learners;

iii. Enhanced access to distance learning programs, online learning modules and the availability of relevant content from any location; and

iv. Facilitation of the collection and analysis of student data to track student performance more accurately (Howley et al, 2012).

The ICT tools and components spreads, Universities, tutor services and other education service providers are able to provide courses remotely without the need for face to face interaction through technologies such as video conferencing, e-learning, streaming and online collaboration portals, which enables them to tap into global demand and leverage brands in a way not previously possible.

ICT has deliver significant educational benefits by providing tools for the teaching and learning process and by providing the skills needed in Nigeria that is increasingly reliant on ICT. On the other hand, students who enter such a world without those skills may be unable to fully participate and suffer from a digital - divide effect. Other possible benefits of ICT in education are improved attitudes to learning, development of teachers' technology skills and increased access of the community to e-learning, adult education and literacy (OECD, 2010; Kozma, 2005).

**v. Health**

In medical practice in Nigeria, ICT networks facilitate electronic exchange of information such as data, images and video. Telemedicine, tele-therapy and advanced diagnostics are just a few of the capabilities made possible by ICT for the benefit of modern medical practice the country. ICT encompasses technologies that enable video consultations with specialists in far flung geographic locations, remote monitoring of patients, and transmission of clinical images in the case of remote radiology. Remote Radiology requires the transmission of extremely detailed pictures with huge amounts of information, which can only be done

through broadband networks. Real-time transmission of medical procedures for diagnostic and training purposes in high definition video has become increasingly common in countries with adequate broadband infrastructure (Presidential Committee on Broadband, 2012).

The digital economy is revolutionizing the healthcare sector, from enabling remote diagnosis to enhancing system efficiencies and patient experience through electronic health records. It also allows opportunities for advertising, for example of drugs and other treatments. Health is one of the areas where ICT brought major benefits in Nigeria. According to ITU (2010), e-health ICT applications include electronic health records, telemedicine - health (the use of mobile devices such as mobile phones for health purposes), decision - support systems, e-learning and e-journals. OECD (2007), the use of ICT was also cited as enabling complex and networked medical equipment. The study points out that the Internet can be a useful source of information about health from an individual's point of view. There is no doubt that ICT can also have negative effects on health, for instance, occupational overuse injuries associated with computer use. The World Health Organization (WHO, 2009) has abroad scope for e-health, defining it as the use of information and communication technologies (ICT) for health and stating that e-Health works to improve health by enhancing patient services and health systems.

**vi. Agriculture**

ICT positively impacts agriculture in several ways. It provides farmers access to timely and relevant information on weather updates, since the quality of crops and other tasks depend in large part on weather and weather predication. The proper timing of planting activities in line with favourable weather conditions often promotes high yield. Quick access to websites that share best agricultural practices makes it possible for farmers to learn about farming management practices, internet marketing options, availability of livestock and seed crops etc. Also farmers who use ICT to access pricing information on the internet are likely to gain bargaining power and make more educated marketing or purchasing decisions. Equally, ICT

enables farmers to market their products directly to consumers. Local farmers have access to new markets when they set up online shops that offer certain agricultural products to customers worldwide.

Nigerian farmers using ICT can operate and monitor their equipment remotely, eliminating the need for regular farm visits by technicians. Automatically generated messages can provide an alert when equipment develops a fault or stops functioning. They can monitor and reset greenhouse temperatures, humidity, and other settings remotely. All these amount to significant cost savings amidst improved performance, Demo-Africa (2012) in Presidential Committee on Broadband (2012).

With 70% arable land, agriculture is a key sector that creates jobs for the Nigerian economy. Agricultural communities are typically rural and rural areas are generally the last to benefit from infrastructural amenities. Non-availability of broadband in rural agricultural communities can translate to lost opportunities resulting in significant economic costs to the nation. It is therefore essential that these rural areas be provided with access to the kind of ICT services that will truly expand their addressable markets while increasing knowledge and saving costs. The Federal Government shall focus on agricultural programs that incorporate access to ICT in their business models and plans. Through the use of ICT farmers can monitor crops and animals, weather and soil/environmental quality. Increasingly, routine processes and agricultural equipment can be managed through ICT automated systems.

**vii. Government**

Information and communication technology can smooth the progress of democratic processes and increase involvement of citizens in governance. Such impacts may occur as a result of greater communication and information dissemination presented by ICTs, through the use of social networking sites, e-mail and mobile phones. They are also frequently enabled by electronic information and services offered by government (e-government), usually via the

Internet or mobile phones. Of particular interest is how e-government can improve democratic processes and encourage citizen participation in decision- making in Nigeria.

Government in Nigeria are increasingly leveraging on ICT to provide online service portals where citizens can receive information and interact with public service administration. ICT is enhancing and move government processes online, increasing the speed of service delivery, improve transparency, reduce arbitrariness and impropriety, and promote cooperation across departments at different levels of government. The delivery of public services via ICT has improved efficiency and it will continue serve as an vital catalyst for the universalization of services. Financial services (e-Payments), health care, voter registration, land and company registration are all examples of public services that will be delivered effectively and quickly online.

The essence of the new approach for delivering government services leveraging ICT infrastructure is good governance. And the objectives of e-government include: Streamlining and standardizing of institutional processes; reducing the hassle for citizens to access government services; Optimizing content and speed of service delivery chain by all tiers of government and Encouraging wholesome recording and dissemination of information and knowledge.

**Table 3: Examples of E-Government Services Nigeria**

| | |
|---|---|
| i. | Issuance of National Identity Card |
| ii. | Issuance of Travelling Document (Passport, Yellow Card, etc.) |
| iii. | Issuance of Driver's license |
| iv. | Issuance of Tax Clearance |
| v. | Issuance of Vehicle Number Plate |
| vi. | Issuance of C-of-O |
| vii. | Issuance of industry license, permit, and authorizations |
| viii. | Issuance of Birth Certificate |
| ix. | Issuance of Marriage Certificate |
| x. | Issuance of Death Certificate |
| xi. | Payment of Tax |
| xii. | Payment of import duty |
| xiii. | Payment of government fines and sanction |
| xiv. | Registration of Land Acquisition |
| xv. | Registration of Vehicle Ownership |
| xvi. | Registration of Companies |

| | |
|---|---|
| xvii. | Registration of Cooperatives |
| xviii. | Registration of Associations |
| xix. | Registration of Town Unions |
| xx. | Registration of other legal entities |
| xxi. | Registration of Voters |
| xxii. | Delivery of Education services |
| xxiii. | Delivery of Health Services |
| xxiv. | Delivery of Security & Protection Services |
| xxv. | Delivery of Essential Amenities |
| xxvi. | Delivery of Justice Administration |
| xxvii. | Delivery of Law and Order |
| xxviii. | Delivery of Fundamental Human Right |

**Source:** Researcher Compilation, (2018)**.**

**viii. Banking and Financial Services**

Banks, insurance providers and other financial institutions, including non-traditional payment service providers, increasingly enable customers to manage their finances, conduct transactions and access new products ICT on line platforms, although they still continue to support branch networks for operations. Better use of data also allows growth in customer insights and associated products, such as personalized spending analysis, which can be used to generate advertising revenue. The ICT has also made it easier to track indices and manage investment portfolios and has enabled specialist businesses such as high-frequency trading.

**ix. Transportation and Logistics**

The transportation and logistics sector has been transformed by ICT digital, which enables the tracking of both vehicles and cargo across continents, the provision of information to customers and facilitates the development of new operational processes such as Just In Time delivery in the manufacturing segment. Vehicle telemetry also helps maximize fuel efficiency, ensure efficient use of the transport network and support fleet maintenance activities. The information collected by fleets can also be used to create datasets with commercial value.

**x. Broadcasting and Media**

The ICT has significantly changed the broadcasting and media business, with increasing broadband access in particular opening new avenues for delivery of content for traditional media players, while also enabling the participation in the news media of non-traditional news sources and expanding user participation in media through user-generated content and social networking. The ICT has also enhanced the ability of companies to collect and use information about the viewing habits and preferences of customers, to enable them to better target programming.

**2.1.2.32 Digital Economy**

The digital economy has given rise to a number of new business models in Nigeria. Although many of these models have parallels in traditional business, modern advances in ICT have made it possible to conduct many types of business at substantially greater scale and over longer distances than was previously possible. The Digital Economy is the global network of economic and social activities that are enabled by platforms such as the internet, mobile and sensor networks. The Digital Economy is also sometimes called the Internet Economy, the New Economy, or Web Economy (MCT, 2012).

The Digital Economy has been defined by the Australian Government as the global network of economic and social activities that are enabled by information and communications technologies, such as the internet, mobile and sensor networks' (Australian Government, 2009).This includes conducting communications, financial transactions, education, entertainment and business using computers, phones and other devices. Australia has made a commitment to becoming a leading digital economy (Henry, 2009)and faces competition from comparable countries that have also adopted a focus on promoting a local digital economy. Without open access to appropriate categories of information, Australia may not enjoy the potential innovation in the digital economy (Australian Government, 2009).

The digital economy that involved cross border transactions can be described into some types. The types of the digital economy include;

1. **Electronic Commerce**

Electronic commerce, or e-commerce, has been defined as the sale or purchase of goods or services, conducted over computer networks by methods specifically designed for the purpose of receiving or placing of orders. The goods or services are ordered by those methods, but the payment and the ultimate delivery of the goods or services do not have to be conducted online. An e-commerce transaction can be between enterprises, households, individuals, governments, and other public or private organizations (OECD, 2011). E-commerce can be used either to facilitate the ordering of goods or services that are then delivered through conventional channels (indirect or offline e-commerce) or to order and deliver goods or services completely electronically (direct or on-line e-commerce).Although e-commerce covers a broad array of businesses; this section provides an illustration of some of the more prominent types (OECD, 2015).

**A. Business - To - Business Models**

The vast majority of e-commerce consists of transactions in which a business sells products or services to another business (B2B) (OECD, 2011). This includes online versions of traditional transactions in which a wholesaler purchases loads of goods online, which he then sells to consumers from retail outlets. It also includes the provision of goods or services to support other businesses, including, among others: i. logistics services such as transportation, warehousing, and distribution; ii. application service providers offering deployment, hosting, and management of packaged software from a central facility; iii. Outsourcing of support functions for e-commerce, such as web-hosting, security, and customer care solutions; iv. auction solutions services for the operation and maintenance of real-time auctions via the Internet; (v) content management services, for the facilitation of website content management

and delivery; and (vi) web-based commerce enablers that provide automated online purchasing capabilities (OECD, 2015).

**B. Business - To - Consumer Models**

Business-to-consumer (B2C) models were among the first forms of e-commerce. A business following a B2C business model sells goods or services to individuals acting outside the scope of their profession. B2C models fall into several categories, including, online vendors with no physical stores or offline presence, businesses that supplemented existing consumer-facing business with online sales, and manufacturers that use online business to allow customers to order and customize directly (OECD, 2015).

**D. Consumer - To - Consumer Models**

Consumer-to-consumer (C2C) transactions are becoming more and more common. Businesses involved in C2C e-commerce play the role of intermediaries, helping individual consumers to sell or rent their assets (such as residential property, cars, motorcycles, etc.) by publishing their information on the website and facilitating transactions. These businesses may or may not charge the consumer for these services, depending on their revenue model. This type of e-commerce comes in several forms, including, but not limited to: (i) auctions facilitated at a portal that allows online bidding on the items being sold; (ii) peer-to-peer systems allowing sharing of files between users; and (iii) classified ads portals providing an interactive, online marketplace allowing negotiation between buyers and sellers (OECD, 2015).

**2. Payment Service**

Paying for online transactions traditionally required providing some amount of financial information, such as bank account details or credit card information, to a vendor, which requires a high degree of trust that is not always present in the case of an unknown vendor, particularly in the case of a C2C transaction. Online payment service providers help address this concern by providing a secure way to enable payments online without requiring the parties to the transaction to share financial information with each other. A number of other

alternative online payment options are in use as well, including. Cash payment solutions, E-wallet or cyber-wallet and Mobile payment solutions

**Key Features of the Digital Economy**

There are a number of features that are famous in the digital economy and which are significant. These features may not all be present at the same time in any particular business, they increasingly characterize the modern economy. They include;

A. Mobility, with respect to (i) the intangibles on which the digital economy relies heavily, (ii) users, and (iii) business functions as a consequence of the decreased need for local personnel to perform certain functions as well as the flexibility in many cases to choose the location of servers and other resources.
B. Reliance on data, including in particular the use of so-called big data.
C. Network effects, understood with reference to user participation, integration and synergies.
D. Use of multi-sided business models in which the two sides of the market may be indifferent jurisdictions.
E. Tendency toward monopoly or oligopoly in certain business models relying heavily on network effects.
F. Volatility due to low barriers to entry and rapidly evolving technology

**2.1.2.33 Some Components of ICT in Digital Economy**

The forth industrial revolution also referred to as the digital revolution and/or digital economy. It has witnessed the emergence of new technologies like Artificial Intelligence, Machine Learning, Blockchain, Internet of Things, Big Data, Cloud Computing, 3D Printing, Digital Market, Digital Skills, and Innovative Skills etc. These technologies are transforming the way and manner we execute our business, daily tasks and are continuously defining the jobs of the future. It is pertinent to note that the future of work lies in the hands of those who can effectively utilise these new technologies.

The importance of the digital economy and the opportunities for innovation leading to entrepreneurial development of ICT created by the emergence of new digital technologies are as follows;

**A. Digital Skills**

Digital Skills are the ability to find, evaluate, utilize, share, and create content using information technologies and the Internet.

**B. Innovative Skills**

Innovative skills are practically the types of skills that allow individuals to become innovative in what they do. These are usually a combination of cognitive skills (e.g. the ability to think creatively and critically), behavioural skills (e.g. the ability to solve problems, to manage risk), functional skills (e.g. basic skills such as writing, reading and numeracy) and technical skills (e.g. research techniques, project management, or IT engineering).

**C. Internet of Things (IoT)**

The traditional use of the internet for communication has been extended to almost everything other than computers and mobile devices. As noticed recently, almost every object can be enhanced to communicate with other objects (machine-to-machine) or with human beings (machine-to-human), and to effectively generate large amount of data for decision making. This evolution that extends internet to everything has given birth to a novel field of research known as Internet of Things. The term was first mentioned by British technology pioneer, Kevin Ashton in 1999. It is estimated that the about 30 billion devices would be connected using IoT architecture the year 2020. Also according to Forbes (2017), the global IoT market will grow from 157 billion (US Dollars) in 2016 to 457 billion (US Dollars) by 2020, thereby achieving a Compound Annual Growth Rate (CAGR) of 28.5%. The projection also stated that industry spending in IoT by 2020 would average 40 billion (US Dollars) for areas like transportation and logistics, discrete manufacturing, and utilities. The projection for health and life sciences would be an increase in IoT spending from 520 billion (US Dollars) to

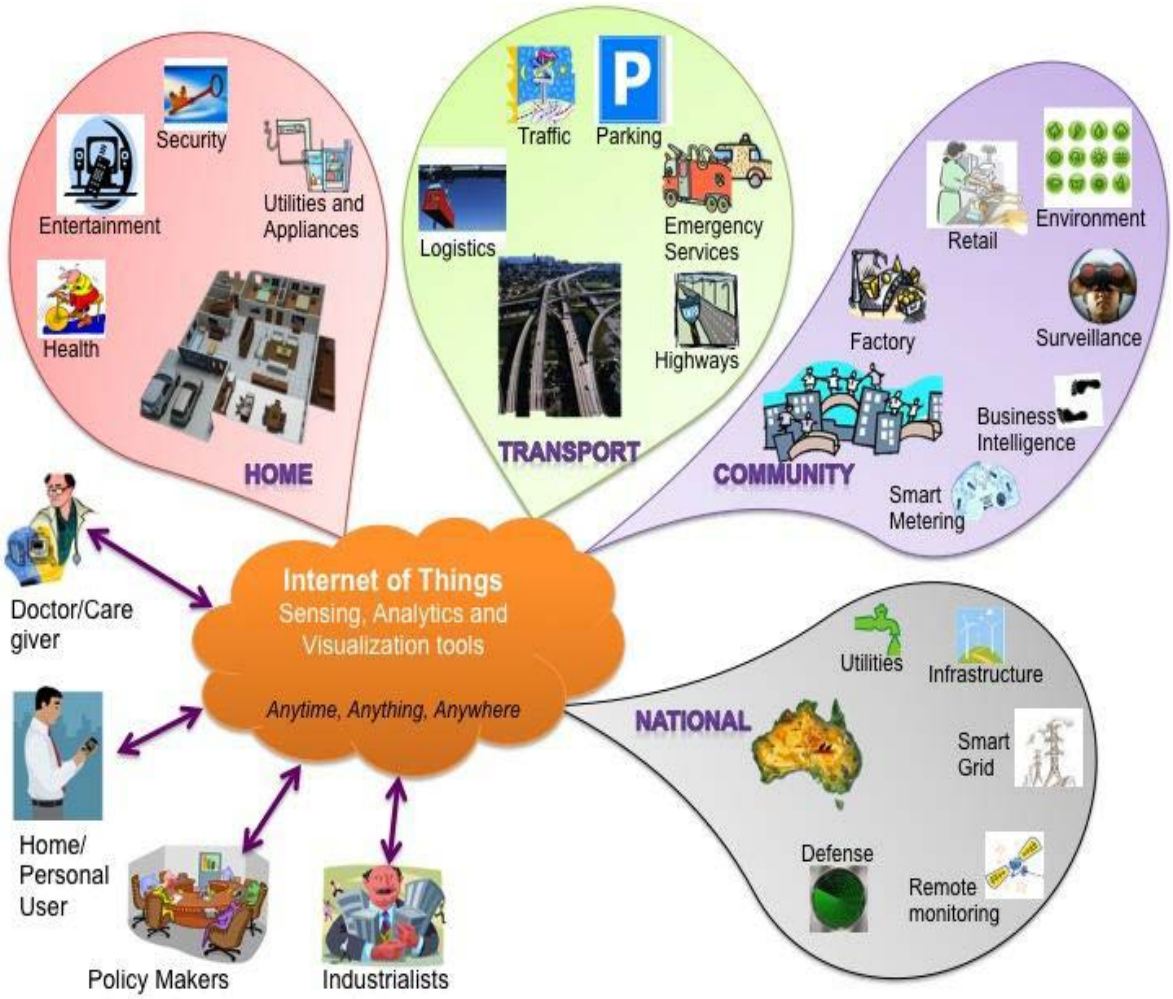
1.33Trillion (US Dollars). These forecasts are an indication that companies expect a huge Return on Investment (RoI) on their IoT products and services. These projections are realistic as evidenced by numerous IoT products available in the market today with a huge impact in both domestic and industrial applications. According to Luigi A., et al. (2010), IoT offers great potentials for development of an enormous products and solutions.

It is important to consider the definition of IoT to provide a better understanding of the concept. Though the definition of IoT is still ambiguous as there is yet to be a concrete definition for the term, the author in this work provides a definition in terms of "Internet" and "Things". The "Internet" is a network of protocols upon which computer communication thrives, while Things on the other hand are physical object that connects to form part of network infrastructure. A thing in this case could be a washing machine, gas burner, refrigerator, air conditioner etc. that has been made smart with wireless sensors, actuators, and Radio Frequency Identification (RFID) embedded in them to enable them connect to the internet for communication. The International Telecommunications Union (ITU, 2012) defines IoT as a global infrastructure for the information society, enabling advanced services by interconnecting (physical and virtual) things based on existing and evolving, interoperable information and communication technologies. From the foregoing, Internet of Things can be defined as the network of heterogeneous physical objects that have been embedded with sensors, actuators, software, and RFIDs to provide them with connectivity to communicate. This interconnectivity these objects and services creates various IoT products (Miorandi, 2012).

**i. Application Areas of Internet of Things**

The ability to equip objects with intelligence for communication has created tremendous impact in various facets of human endeavor. IoT has led to an upsurge of ICT based job and innovation (Miorandi, 2012) which has given birth to many products and services used both in industries and homes. It is important as part of the review on IoT to discuss some of its

application areas, and how lives and societies are being transformed. Here, the discussion is of the areas of application is limited to health, transportation and logistics, smart city, and home automation. The diagram below provides a brief description of the application areas of Internet of Things.




**Source:** Adapted from Gubbi, (2013).

**Figure: 6** Internets of Things Application Areas

### ii. Internet of Things Research Challenges

Despite the wide acceptability and application of IoT, the field still contends with numerous challenges majorly as a result of the homogeneity of the devices and sensors that connect to create a network. These challenges have thrown open new areas of research. In this section, a review of two of these challenges and efforts made to address them are considered.

### iii. Privacy and Security

Privacy and security of data over an IoT is of paramount concern and a lot is being done to address this. As mentioned earlier, the complex nature of IoT network is as a result of the heterogeneity of the various devices which mostly are vulnerable to attacks (Atzori, et al., 2010; Gubbi, et al., 2013). These attacks come in different ways - disabling of network like denial of service, mutilation of data packets, and intrusion to access private data (Gubbi, et al., 2013). This vulnerability is as a result of the wireless medium for communication, and low computing power of the IoT devices (Atzori, et al., 2010).

With reference to the work by Gubbi, et al., (2013), there are three physical elements of IoT that are greatly prone to privacy and security attacks – Wireless Sensor Networks (WSN), cloud, and Radio-Frequency Identification (RFID). The authors opined that RFID is the most prone to attacks due to its porosity which allows alteration of data packets along network routes (Atzori, L., et al., 2010), thereby raising concerns about the safety private or personal information (Mashal, et al., 2015). Two main problems were identified with RFID; RFID reader collision which is as a result of signal overlay, and RFID tag collision which occurs as a result of overcrowding of tags in a limited area. WSN on its part cannot be authenticated as it is not considered a node on an IoT network (Atzori, et al., 2010).

Bandyopadhyay and Sen (2011) and (Whitmore, et al. (2014), stressed the need for greater effort to address this issue and suggested a reliable security model and standards that would recognize the various users and objects on an IoT network. Another possibility would be to develop an algorithm for data encryption and authentication for the IoT network.

### iv. Common Architecture Framework

The homogenous nature of IoT devices makes it difficult to define a common architecture that would address the issue of interoperability - communication and service. The architectural deficiencies noted so far are; scalability, portability, communications, deployment, control, interoperability, and connectivity which require an architectural reference model to be developed for IoT.

Gubbi, et al. (2013), proposed an architecture that is centered on computing though, acknowledged it may not be the most appropriate for IoT. In the work, Research Directions for The Internet of Things, Stankovic, (2014), suggested that the elements enhancing IoT network such as sensors and actuators have their separate architectures defined for them. Nonetheless, this approach was noted to have its own limitations as a result demand for usage of common utilities by the devices which could result in interference. Other researchers like the European FP7 Research Project IoT- A project partners in the work, Introduction to the Architectural Reference Model for the Internet of Things developed an Architectural Reference Model (ARM) to address the problem of having a shared architecture for devices on an IoT network. Conclusively, to achieve the desire of having a shared architecture for IoT network is still far ahead and entails huge research collaboration from all industry players to be realized.

## D. Artificial Intelligence

The word artificial intelligence was first coined by John McCarthy in 1956 when he invited a group of researchers from a variety of disciplines including language simulation, neuron nets, complexity theory and more to a summer workshop called the Dartmouth Summer Research Project on artificial intelligence to discuss what would ultimately become the field of artificial intelligence. At that time, the researchers came together to clarify and develop the concepts around “thinking machines” which up to this point had been quite divergent. McCarthy is said to have picked the name artificial intelligence for its neutrality; to avoid

highlighting one of the tracks being pursued at the time for the field of “thinking machines” that included cybernetics, automata theory and complex information processing. The proposal for the conference said, “The study is to proceed on the basis of the conjecture that every aspect of learning or any other feature of intelligence can in principle be so precisely described that a machine can be made to simulate it.”Today, modern dictionary definitions focus on AI being a sub-field of computer science and how machines can imitate human intelligence (being human-like rather than becoming human). The English Oxford Living Dictionary (2018) defines artificial intelligence as the theory and development of computer systems able to perform tasks normally requiring human intelligence, such as visual perception, speech recognition, decision-making, and translation between languages. Merriam-Webster (2018) defines artificial intelligence as a branch of computer science dealing with the simulation of intelligent behavior in computers. It is the capability of a machine to imitate intelligent human behaviuor.

The Encyclopedia Britannica (2018) sees artificial intelligence, the ability of a digital computer or computer-controlled robot to perform tasks commonly associated with intelligent beings.” Intelligent beings are those that can adapt to changing circumstances.

Definitions of artificial intelligence begin to shift based upon the goals that are trying to be achieved with an artificial intelligence system. Generally, people invest in AI development for one of these three objectives:

1. Build systems that think exactly like humans do (strong AI )
2. Just get systems to work without figuring out how human reasoning works (“weak AI”)
3. Use human reasoning as a model but not necessarily the end goal

Turns out that the bulk of the AI development happening today by industry leaders falls under the third objective and uses human reasoning as a guide to provide better services or create better products rather trying to achieve a perfect replica of the human mind.

## E. Robotics

The concept of robot creating machines that can operate autonomously dates back to classical times, but research into the functionality and uses of robots did not grow until the 20th century. Robotics is a branch of engineering that involves the conception, design, manufacture, and operation of robots. This field overlaps with electronics, computer science, artificial intelligence, mechatronics, nanotechnology and bioengineering (Nocks, 2007).

Throughout history, it has been frequently assumed that robots will one day be able to mimic human behaviuor and manage tasks in a human-like fashion. Today, robotics is a rapidly growing field, as technological advances continue; researching, designing, and building new robots serve various practical purposes, whether domestically, commercially, or militarily. Many robots are built to do jobs that are hazardous to people such as defusing bombs, finding survivors in unstable ruins, and exploring mines and shipwrecks. Robotics is also used in science, technology, management, engineering, and mathematics as a teaching aid.

## F. Machine Learning

The word machine learning was first coined in 1959 by Arthur Samuel. Machine learning explores the study and construction of algorithms that can learn from and make predictions on data such algorithms overcome following strictly static program instructions by making data-driven predictions or decisions, through building a model from sample inputs (Samuel,1959 & Bishop, 2006). Machine learning is a field of artificial intelligence that uses statistical techniques to give computer systems the ability to learn for example progressively improve performance on a specific task) from data, without being explicitly programmed. It is employed in a range of computing tasks where designing and programming explicit algorithms with good performance is difficult or infeasible; example applications include email filtering, detection of network intruders, and computer vision (Samuel, *1959 &* Bishop, 2006).

Amazon builds a lot of its business on machine - learning systems as a subset of artificial intelligence; it is the field of computer science dedicated to solving cognitive problems commonly associated with human intelligence, such as learning, problem solving, and pattern recognition. Machine learning is so important to Amazon, they stated, without machine - learning, Amazon.com couldn't grow its business, improve its customer experience and selection and optimize its logistic speed and quality.

**G. Big Data**

Big data refers to the growth in the volume of structured and unstructured data, the speed at which it is created and collected, and the scope of how many data points are covered (Jake, 2017). Big data also refers to a process that is used when traditional data mining and handling techniques cannot uncover the insights and meaning of the underlying data.Big data often comes from multiple sources and arrives in multiple formats. The increase in the amount of data available presents both opportunities and problems. In general, having more data on one's customers (and potential customers) should allow companies to better tailor their products and marketing efforts in order to create the highest level of satisfaction and repeat business. Firms that are able to collect large amount of data are provided with the opportunity to conduct deeper and richer analysis. This data can be collected from publicly shared comments on social networks and websites, voluntarily gathered from personal electronics and apps, through questionnaires, product purchases, and electronic check-ins. The presence of sensors and other inputs in smart devices allows for data to be gathered across a broad spectrum of situations and circumstances (Jake, 2017).

**H. Blockchain**

Of the several emerging technologies in the digital era, one that is touted to transform and disrupt businesses at a large scale is the Blockchain technology. This technology witnessed an increase in popularity with the birth of the Bitcoin, which is the first and most widely used cryptocurrency. The blockchain technology is an encrypted, distributed ledger of records

commonly referred to as blocks. It is managed by a peer-to-peer network working together to validate new blocks while ensuring strict adherence to a protocol of inter-node communication.

The application of blockchain goes beyond traditional financial services and extends to other industries important for the SDGs, such as education, agriculture, and healthcare. As blockchain is projected to disrupt many different industries, it presents both risks and opportunities to businesses, consumers and governments, and consequently new challenges for policymakers and regulators.

**Merits of the Blockchain to Businesses**

While there abound numerous advantages of blockchain to businesses, highlighted below are three major reasons.

1. **Transparency**

   Experts in different industries agree that transparency is key to maintaining consumer trust and improving business relations. Because transactions in a blockchain are public, the validity of blocks can be confirmed by anyone on the network, hence, no chance of discrepancy.

   “By providing details of transactions against the commercial construct, further trust can be enlisted within the process and so provide a more stable relationship based on transparency rather than negotiation. “

2. **Security**

   Transactions in a blockchain are verified using complex cryptography. All transactions conducted are verified, cleared and stored in a block that is linked to the preceding block, thereby creating a chain. Each block must refer to the preceding block to be valid. This structure permanently timestamps and stores exchanges of value, preventing anyone from altering the ledger. For businesses, blockchain ensures that transactions processed using the technology is authentic before it can be allowed into the chain.

3. **Efficiency**

The blockchain is completely decentralised with no central authority to monitor and direct the flow of transactions. These transactions are completed directly between relevant parties with no intermediary, thereby ensuring that transactions are quickly settled. By eliminating third-party intermediaries and related overhead costs, transaction rates are increased, and transaction costs are virtually non-existent. Blockchain projects generally have quick turnaround times, which can be further reduced to minutes, lowering transaction costs. Speaking on the efficiency and transparency of Blockchain technology, Stefan Schmidt, the CTO of Unibright states.

Integrating the Blockchain with existing ERP systems enables enterprises to source existing data and shares it in an immutable, secure, and trusted manner. What this means for corporations and their consumers is higher quality products, sourced in exceptionally cost-effective ways, with a far greater level of accountability. The significance of Blockchain business integration cannot be understated.

**Demerits of the Blockchain to Businesses**

It is important to note that blockchain has its practical limits.

**Performance**: Because of the nature of blockchains, it is said to be slower than centralised databases. As pointed out by Coin telegraph here, there is no Blockchain network in existence that could sustain the same amount of transactions as major card issuers like Visa or MasterCard do. Blockchain still has a very long way to go before it will be capable of replacing the giants of the financial world.

**Crime**: Satoshi Nakamoto, the inventor of the bitcoin cryptocurrency, highlighted a term called ‘51% attack’ when he launched the bitcoin. The 51% attack is a situation where more than half the nodes on the network accept a false transaction as true. This alters the integrity of the system and corrupts that chain of transactions.

To ensure that nodes connected to the network follow set ethics in approving transactions, the mining pools are closely monitored by the community ensuring no one (un)knowingly gains overwhelming influence over the network.

**Energy Consumption**: Processing transactions on the blockchain requires a massive amount of computing power. According to a 2017 study, Power Compare predicts that without a significant alteration in the way we process Bitcoin transactions, the cryptocurrency could guzzle enough energy to power the United States by the middle of 2019.

However, the need to ensure that more transactions are carried out within the shortest time possible has led cryptocurrency miners to seek more low-cost renewable energy. Michael Casey, a senior advisor on blockchain research at MIT, points out that the demand for processing power will, “Not only incentivise miners to seek low-cost renewable energy, but also drive energy firms to work hard at developing solutions for them, with spill over benefits for the rest of the world.”

The blockchain technology has great potential to facilitate a more sustainable world. However, change does not happen by itself. As changes are happening rapidly, both traditional industries and governments have so far been slow to adapt to the changing landscape. The blockchain technology, though in its early stages, will continue to evolve and be used in many more innovative ways.

## I. Cloud Computing

Cloud computing is the delivery of different services through the internet. These resources include tools and applications like data storage, servers, databases, networking, and software.

Rather than keeping files on a proprietary hard drive or local storage device, cloud-based storage makes it possible to save them to a remote database. As long as an electronic device has access to the web, it has access to the data and the software programs to run it. Cloud computing is a popular option for people and businesses for a number of reasons including cost savings, increased productivity, speed and efficiency, performance, and security.

Regardless of the kind of service, cloud computing services provide users with a series of functions including: Email, Storage, backup, and data retrieval, Creating and testing apps, Analyzing data, Audio and video streaming and Delivering software on demand.

**J. Knowledge Economy**

The Knowledge Economy is a state of economic being and a process of economic becoming that leverages intensively and extensively knowledge assets and competences as well as economic learning to catalyze and accelerate sustainable and robust economic growth (Elias, Denisa, Caroline & McDonald, 2006). A knowledge-based economy is defined as one which is directly based on the production, distribution and use of knowledge and information (OECD, 1996).A knowledge-driven economy is one in which the generation and exploitation of knowledge play the predominant part in the creation of wealth (UK Department of Trade and Industry, 1998).

**2.1.2.34 Cooperate Profile of Selected ICT Firms**

1. **Multinational Mobile Telecommunication** (**MTN) Nigeria**

MTN Nigeria is part of the MTN group, a South African domiciled multinational company whose subsidiaries cuts across the length and breadth of Africa. MTN Nigeria commenced operations in 2001 after securing its GSM license from the Nigeria Communications Commission (NCC).Their primary services include the provision of GSM, data, international roaming and mobile phone retail services. MTNS Nigeria is headquartered at Golden plaza Ikoyi, Lagos and its website is mtnonline.com.

2. **Globacom Nigeria Limited**.

Globacom Limited is a Nigerian owned telecommunication company founded by Dr. Mike Adenuga. Globacom is one of the pioneering telecommunication companies in Nigeria.

Glo Nigeria Ltd., whose primary services involve the provision of data and telephony services is headquartered in Lagos Nigeria and has operations in Ghana, Togo and Cote

d'Ivoire. GLO submarine cable provides ultrafast internet connections to Nigeria as well as West Africa. Its website is gloworld.com/ng.

3. **Google Nigeria**

Google is currently the world's largest and most respected search engine giant. The American based, Multinational search engine giant has operations that cut across several countries of the World. Some of their services include cloud computing, online advertising, online search, and software. Google Nigeria is headquartered at Rewane Ikoyi, Lagos. Its website is google.com.ng.

4. **MainOne**

The MainOne Company was founded in 2010. It is an indigenous communication service provider of wholesale internet services to telecom operators, ISPs, government agencies, educational institutions and large enterprises. The Main One Cable is a submarine cable that stretches from Portugal to South Africa, with landings in Lagos and Accra. This fiber optic, submarine cable acts as a gateway, connecting these countries with the rest of the world by providing superfast internet link. MainOne's head office is located at Ligali Ayorinde Street. VI, Lagos. Its official website: mainone.net.

5. **Huawei Technologies Co. Ltd**

Huawei Technologies Co. Ltd is Chinese multinational networking and telecommunications equipment and Services Company headquartered in Shenzhen, Guangdong. Huawei has focused on expanding its mobile technology and networking solutions through a number of partnerships. In March 2003, Huawei and 3Com Corporation formed a joint venture company, 3Com-Huawei (H3C), focuses on the Research & Development, production and sales of data networking products.

6. **Interswitch Nigeria**

An idea ran through Mitchell Elegbe's ingenious mind while still heading the Group Marketing and Business Solution at Telnet Nigeria in 2001.It was to build a system that would enable electronic transaction of money. A year later, Elechi had founded Interswitch.

Today, Interswitch not only has the infrastructure for online, real-time transaction switching and payment processing, its shared infrastructure has been adopted by banks, government agencies and corporate organizations to accelerate growth while reducing cost of operations.

7. **Microsoft Nigeria**

Microsoft Corporation is an American multinational technology with headquarters in Redmond, Washington. It develops, manufactures, licenses, supports and sells computer software, consumer electronics, personal computers, and related services. Its best known software products are the Microsoft Windows line of operating systems, the Microsoft Office suite, and the Internet Explorerand Edgeweb browsers. Its flagship hardware products are the Xboxvideo game consoles and the Microsoft Surface lineup of touch screen personal computers. As of 2016, it is the world's largest software maker by revenue, and one of the world's most valuable companies. Microsoft Nigeria, a subsidiary of Microsoft Corporation, the global technology giant headquartered in US underscores its commitment to play its role in strengthening the nation's economy.

8. **Computer Warehouse Group**

With over two decades of immense contribution to the information communication and technology sector, CWG Plc has continuously remained a benchmark for excellence in Africa. The company commenced operations in Nigeria, on September 26th 1991 as Computer Warehouse Limited principally to cater for the hardware projects. Five years on, DCC Networks was established as the communication arm, to provide VSAT, Metropolitan, Wide Area and Local area networks to corporate organizations. In order to concentrate on demands in the area of software solutions, system and training, the Expert Edge software was

acquired in 1999.Over time, CWC have received a number of accolades from our partners, customers, media and professional bodies as a result of our service excellence and increased performance. Most recently, The World Economic Forum (WEF) recognized CWG Plc as a Global Growth Company.

**9. Airtel Nigeria**

Airtel is an Indian domiciled telecommunication company. Its Nigeria operations commenced 2010 after taking over ownership from Zain. The network has greatly improved under its new leadership and provides high-quality, telephony and data services to customers. Headquartered in Ikoyi Lagos, Airtel Nigeria has one of the largest and most dedicated mobile internet subscriber bases. Its website is africa.airtel.com/nigeria.

**10. Zinox**

A trail blazer in Nigeria's IT industry, Stanley Ekeh set up Zinox Technologies Limited in 2001 determined to fill the gap of manufacturing computers locally. To achieve this, Zinox Computers was launched. Nigeria's First Internationally Certified Branded Computers which came with a Naira sign and a power supply designed to country's unstable power.

**11. Omatek**

Omatek Computers Limited is the first factory to locally assemble Computer cases, Speakers, Keyboards and Mouse, other than Computer systems and Notebooks in the whole of Africa. The assembling of these components in this factory has created a great advantage to other systems builders as well as resellers all over Africa for retailing.

**12. DataFlex**

Dataflex is one of the oldest indigenous ICT companies in Nigeria, with years of operation spanning over two decades. Initially, Dataflex started its business by supplying computer and other related technology products to customers. Currently, they have fortified their system by providing enterprise services to Large and mid-range organizations. hey have a vast array of global partners some of which include: Microsoft, Oracle, Symantec, IBM, Dell, Fujitsu,

EMC and many more. Dataflex's head office is located at MurinOkunola Street, Victoria Island and its official website is dataflexng.net.

**13. IBM Nigeria**

International Business Machines, commonly referred to as IBM, is an American-based multinational company with subsidiaries spread across the major economic hub around the world.IBM manufactures and promotes computer software, middleware, and hardware. In addition, they offer other services such as cloud computing, hosting and consulting services. IBM Nigeria is situated at KarimuIkotun Street, Victoria Island, Lagos. Its website is ibm.com/ng.

**14. Chams Plc**

Chams is a leading provider of integrated identity management systems and verification platforms in Nigeria since 1992 to date. Chams Plc is the first home-grown company to be listed in the Guinness Book of Records for setting up the mega Chams City Digital Mall. Chams Plc is also the first computer technology company listed on the Nigerian Stock Exchange.

**15. Cloudware Technologies**

Cloudware Technologies design, develop, implement Cloud-based Solutions and designs website, Applications, and software. Cloudware Technologies also designs; Android, Blackberry, IOS, Java, Symbian & SMS, Mobile Applications. Cloud SMS a subsidiary of Cloudware Technologies is Nigeria's most reliable bulk SMS service provider in Nigeria. Dubbed the No. 1 in customer service, Cloud SMS can bring SMS Alert sending capability of your software/app to life via its robust API.

**16. DHL**

DHL Express is a division of the German Logistics Company Deutsche Post DHL providing international courier, parcel, and express mail services. Deutsche Post DHL is the world's largest logistics company operating around the world, particularly in sea and air mail.The

company expanded its service throughout the world by the late 1970s. The company was primarily interested in offshore and intercontinental deliveries, but the success of FedEx prompted their own intra-US expansion starting in 1983.

**17. DAAR Communications Plc (AIT)**

DAAR Communications plc is an independent privately owned broadcasting organization in Nigeria. It was established on August 31, 1998 by Raymond Dokpesi and on April 23, 2007, it was converted into a public liability company. It pioneered Africa Independent Television (AIT). AIT is motivated by uniquely altruistic aim to promote and methodical project Africa from an African perspective. AIT offers the world a new insight into the African experience. The mission is to enhance global understanding through an untainted appreciation of the world and its people.

AIT's technological base is remarkable and revolutionary, coupled with state-of-the-art equipment in line with global standard. These have effectively positioned Africa Independent Television (AIT) in the league of global broadcast brands. The programmes exclusively on AIT which has universal appeal and have impacted remarkably on the lives of the citizens of Nigeria particularly and the entire human race.

**18. Oracle Nigeria**

The Oracle Corporation is an American global computer technology corporation, headquartered in Redwood City, California. The company primarily specializes in developing and marketing database software and technology, cloud engineered systems and enterprise software products - particularly its own brands of database management systems. In 2011 Oracle was the second-largest software maker by revenue, after Microsoft.

The company also develops and builds tools for database development and systems of middle-tier software, enterprise resource planning (ERP) software, customer relationship management (CRM) software and supply chain management (SCM) software. Larry Ellison, a co-founder of Oracle, served as Oracle's CEO from its founding until September 18, 2014,

when it was announced that he would be stepping down, with Mark Hurd and Safra Catz to become CEOs. Ellison became executive chairman and CTO. He also served as the Chairman of the Board until his replacement by Jeffrey O. Henley in 2004. On August 22, 2008, the Associated Press ranked Ellison as the top-paid chief executive in the world.

**19. Galaxy Backbone Limited**

Galaxy Backbone PLC is Information and Communications Technology Services provider, wholly owned by the Federal Government of Nigeria. Galaxy Backbone PLC was established in 2006 by the Federal Government based on the need for Government to pursue a coordinated and harmonized approach to information and communications technology acquisition, operation and use in the public sector.

**20. Nigerian Communications Satellite Limited (NIGCOMSAT)**

NIGCOMSAT Ltd owns and operates the Nigerian Communications Satellite systems. The NigComSat-1R system is built to provide domestic and international satellite services via a 2 way satellite communications service across West, Central, South East Africa, Europe and Asia. Our main focus is to operate and manage the Nigerian Communications Satellites to provide on commercial basis, comprehensive transmission services via digital or analogue systems and to operate same by either fixed or mobile satellite, direct broadcast satellite services, end to end solutions and to engage in transponder leasing and such business for profit.

**21. Grace FM 95.5**

Grace FM95.5 is a Radio Station in Kogi State. It is a privately owned radio Station established in Lokoja broadcasting for 24Hours a day. It is the first child of the largest entertainment, multi-media company in North Central Zone in Nigeria. over the years they have history of broadcasting and providing hearty entertainment on Radio,Grace Fm is alive with professionals.

**22. Joy FM 96.5**

Joy FM 96.5 is a Radio Station in Benue State. It is a privately owned radio Station established in Otukpo broadcasting for 24Hours a day independently. Its main focus is news and entertainment.

**23. Panet Technologies Limited**

Panet Technologies Ltd is a privately held Nigerian limited liability company, founded by Patrick Obilikwu, a first class computer science graduate of the University of Benin. The company was incorporated in Nigeria on the 19th of October 2004 with a focus on the Information and Communication Technology (ICT) sector of the economy. The company has extensive experience in both software and hardware and plays deep in the entire system life-cycle incorporating portal design and implementation.

PANET Technologies Ltd. is a software development company with extensive experience in portal development technologies, note ably J2EE among others. We have also developed competence in ICT and VSAT infrastructure deployment to effectively support our online portal applications.

The company has proven experience in project management consulting services, web design and hosting. Our engagements are delivered using our proprietor methodologies that have the customer as the focus.

**24. Xttech Global Services**

Xttech Global Services aims to always complete projects quickly, reliably and cost effectively. We aim to achieve this level of success by designing and developing systems that involve a broad base of talented individuals from various IT backgrounds.

Working with information technology (IT), we understand how a company can evolve, in both its direction and its services, and how it needs to be able to respond to the demands of the marketplace. By working closely with our customers and using our proven project development approach, we are able to provide both functional and technical solutions - with

reliability and adaptability for changing requirements. We aim to deliver to our clients an easy to implement solution at the quickest time for the most reasonable price.

Also, the client is heavily involved from the project's inception to implementation and finally to handover and maintenance. This ensures that any project we deliver is made exactly to the client's requirements and all possible technical solutions have been considered before implementation.

Xttech Global Services profession fees are comparatively low compared to the immense economic benefits derived by our clients from the optimization of their investment. We offer its services to indigenous and multinational companies in various fields ranging from the energy sector to the food industry.

**25. United Parcel Service**

United Parcel Service (UPS) is the world’s largest courier delivery, and global logistics company with its headquarters in Sandy Springs, Georgia, USA. It is the world’s leading provider of specialized transportation, logistics, capital, and e-commerce services. With offices in over 220 countries and territories around the world, UPS delivers more than 15 million packages to 7.1 million customers daily.

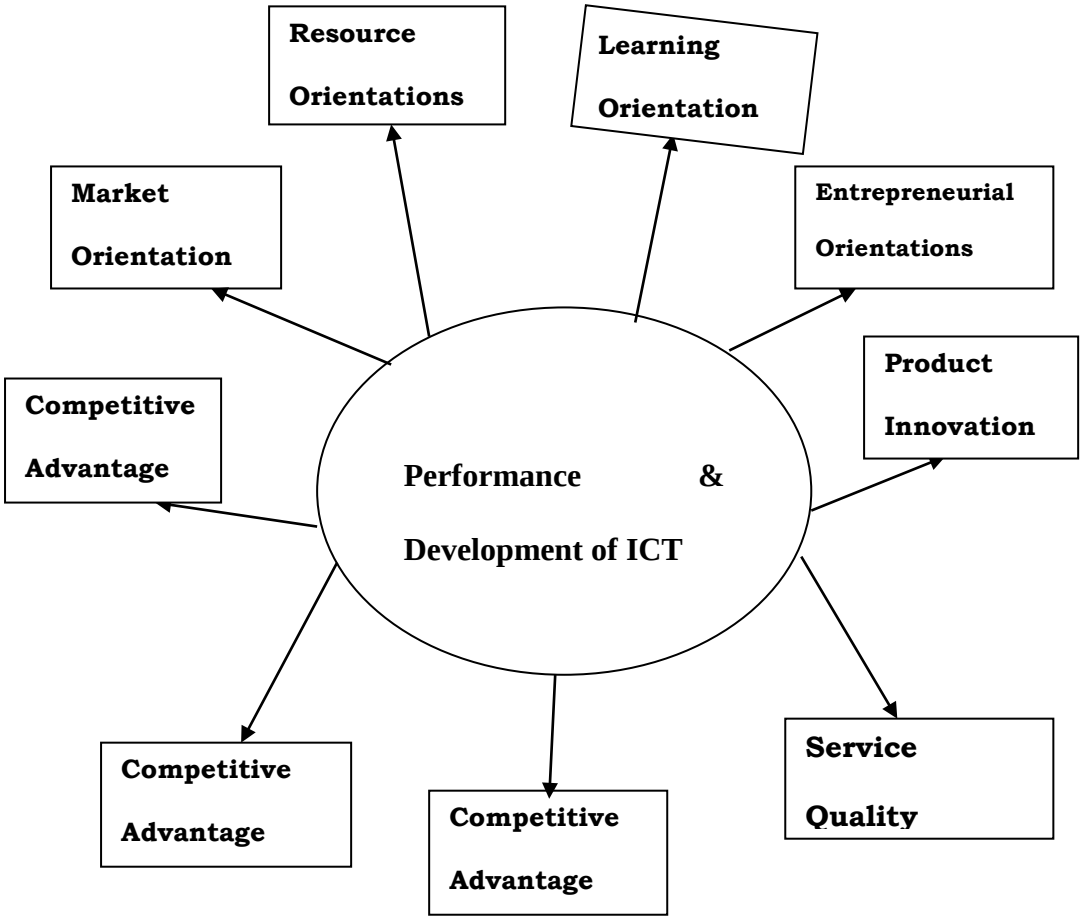
Founded in 1907, with over a century of experience in the business, UPS has grown into a multi-billion dollar corporation by focusing on delivering top class package delivery and logistics services to its customers. In Nigeria, it was established in 1979 as International Messengers Ltd. It was later incorporated as UPS in the early 1990s. UPS Nigeria operates in over 150 offices across the country, with over 500 staffs and 60 contractors.

**2.1.2.35 Conceptual Framework**

| **Strategic Orientations** | **Entrepreneurial Development** |
|---|---|
| Market Orientations | Competitive Advantage |
| Technology Orientations | Product Innovation |
| Resource Orientations | Competitive Advantage |
| Learning Orientations | Service Quality |
| Entrepreneurial Orientations | Competitive Advantage |

**Performance of ICT**

**Source:** Researcher Conceptualization, (2018).




**Source:** Researcher Conceptualization, (2018).

**Figure: 7** Conceptual Frameworks

## 2.2 Theoretical Framework

This study considers both resource-based view theory, Schumpeterian and theory contingency theory as underpinning theories to support the objectives and hypotheses. As the study concerns on the effect of strategic orientation and entrepreneurial development on the performance of Information and Communication Technology firms in North-Central, Nigeria. The review on these theories briefly discusses to illustrate their significance in view of the study.

### 2.2.1 Resources Based View (RBV) Theory

The resource-based view of the firm provides the theoretical framework for this study. However, the RBV theory is an economic tool used to determine the strategic resources available to a firm. The work of Penrose (1959) is marked as a base of RBV of the firm. Penrose conceptualized the firm as an administrative organization and a collection of productive resources. She distinguished between ‘physical’ and ‘human resources’ and the latter include the knowledge and experience of the management team. The classical RBT presume that firm requires recruitment of more such resources in order to achieve competitive advantage (Penrose, 1959). The initial statement about the RBV theory by Wernerfelt (1984) served as its foundation, which states that a resource is 'anything’ which could be thought of as a strength or weakness of a given firm . . . whose tangible assets which are tied semi permanently to the firm. The resource based theory has intention to understand how firm’s value-creating strategies meet dynamic environment to achieve sustainable firm performance (Eisenhardt & Martin, 2000).

Though, RBV theory was popularized by seminal article of Barney (1991), in which he specified four attributes of a ‘resource’ through which a firm can attain sustained competitive advantage. He redefined a ‘resource’ to include 'all assets, capabilities, organizational processes, firm attributes, information, knowledge, etc. controlled by a firm and which enable it to conceive and implement strategies that improve its efficiency and effectiveness’. This

theory underlines the condition under which firms can gain the best performance. Along with broaden perspective of global sustainability, such performance is considered to be superior profit if it meets a sustainable competitive advantage. There're two main concepts, which are expected to bring superior performance, namely resources and capability (Bell & Martin, 2012).

According to Barney (1991) resources fall into three categories: physical, human and organizational. Tangible/Physical capital: includes the physical and financial assets like, plant and equipment, technology, etc. that an organization uses to create value for its customers.

Human capital: includes skills, experience, judgment and intelligence of the individual managers and workers in the firm. These are typically embedded in unique routines and practices that have evolved and accumulated over time.

Organizational capital: refers to an organization's capacity to deploy intangible and tangible resources overtime. Barney (1991) formalized this theory, although it was Wernerfelt (1984) who introduced the idea of resource position barriers being roughly analogous to entry barriers in the positioning school (Wikipedia, 2017).

Barney and Clark (2007) asserts that resource based view RBV theory views organizations as consisting of a variety of resources generally including four categories viz; physical capital, financial capital, human capital, and corporate capital, (Barney & Clark, 2007). The attributes of resources held by firms can contribute and determine their level of performance (Yang & Konrad, 2011). Resources that allow a firm to implement its strategies are viewed as valuable and can be a source of competitive parity Barney & Clark, (2007). Resources that are viewed as valuable and rare can be a source of competitive advantage. Those that are valuable, rare and inimitable can be a source of sustained competitive advantage (Barney & Clark, 2007). Moreover, to achieve a sustained competitive advantage, a firm needs to have the ability to fully exploit the potential and stock of its valuable, rare and inimitable resources. Such ability and potential often resides in the diverse characteristics of its workforce.

Barney (1986, 1991) summarized four empirical indicators of the potential of firm resources to generate sustained competitive advantage in a VRIN model signifying V=Valuable, R=Rare, I=Imperfectly Imitable and N= (Non) –Substitutability. The resource-based view (RBV) as a basis for the competitive advantage of a firm lies primarily in the application of a bundle of valuable tangible or intangible resources at the firm's disposal. To transform a short-run competitive advantage into a sustained competitive advantage requires that these resources are heterogeneous in nature and not perfectly mobile (Peteraf, 1993). Effectively, this translates into valuable resources that are neither perfectly imitable nor substitutable without great effort Barney (1991). If these conditions hold, the bundle of resources can sustain the firms above average returns. The VRIO and VRIN model also constitutes a part of RBV. Notably, employees of different age groups may be endowed with different capabilities and are viewed as resources that are well appropriated, can enhance organizational performance.

Resources are the assets of the firm because firm uses them to do their activities. Specifically, resources may be utilized to create capabilities which linked with firm performance (Amit and Schoemaker, 1993). The resources capabilities and performance relationship are defined by Newbert (2007). Newberts research is based on initial works by Amit and Schoemaker (1993).

i. If a firm has resources and capabilities to utilize resources efficiently which are important and unique for it than attain sustainable competitive advantage
ii. If firm’s resources and capabilities are unique and non-substitutable then firm also achieve sustainable competitive edge.
iii. The sustainable competitor’s edge will help the firm to enhance its short term and long term performance (Newbert, 2007).

These resources can be exploited by the firm in order to achieve sustainable competitive advantage. The resource - based view focuses on enterprise resources as the key element of

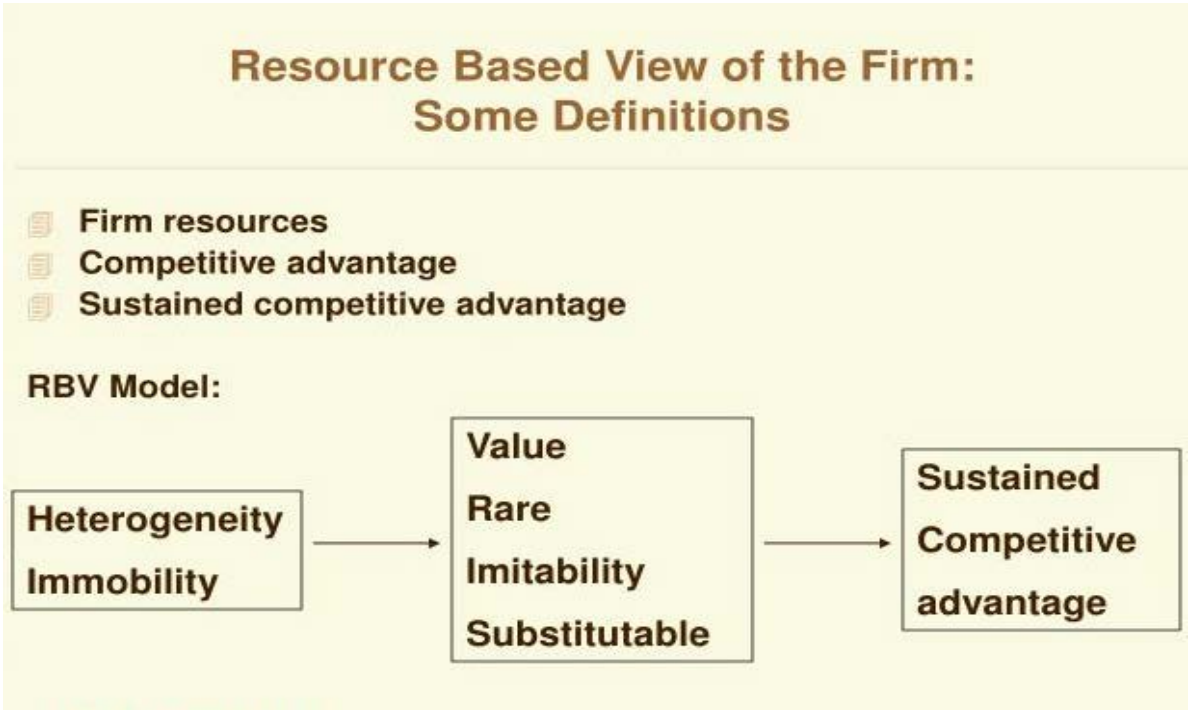
competitive advantage and performance (Das & Teng, 2000; Peteraf & Barney, 2003). The RBV is efficiency - based explanation of performance and is one of the leading theories used to explain the role of organizational capabilities in utilizing resources to gain a competitive advantage and superior performance (Akio, 2005; Peteraf & Barney, 2003).

This framework has been used in previous empirical studies to demonstrate positive relationships between firm resources, capabilities, and performance (Closs & Xu, 2000; Daugherty, Patricia, Richey, Glenn, Genchev, Stefan & Chen 2005). The current research is specifically concerned with intangible resources: organizational culture as evidenced by market orientation, entrepreneurial orientation, customer orientation, competitor orientation, and technological orientation. Resources are the source of firm capabilities (Grant, 1991). Capabilities are defined as complex routines that determine the efficiency with which firms transform inputs to outputs (Collis, 1991).

Firms with a strong customer orientation pursue competitive advantage by placing the highest priority on the creation and maintenance of customer value Olson, Slater and Hult, 2005). Market intelligence is an important element of strategic orientation. A firm's sustained ability to compete is due, in large, to the uniqueness of a firm's intelligence (Grant, 1996; Turner & Makhija, 2006; Zander & Kogut, 1995). Customer orientation is a culture in which the needs and values of the customers are communicated formally within the organization between departments and managers and informally among all employees of the organization. The communication exchange supports the development of organizational capabilities (Teece, 1998). As a result, these firms should be well positioned to anticipate changes in needs and develop new products and services (Day, 1994). In particular, previous researchers have argued that product innovation may result from a firm's ability to focus on thinking on behalf of the customer to achieve an outcome beyond the customer's expectations (Kandampully, 2002). Leaders in service industries introduce cutting-edge products in advance of customer expectations and set the pace in the market (Kandampully, 2002).

The RBV argues that resources are the main resources possessed by any firm and therefore are the primary determinants of their performance, that is, competitive advantage (Powell, 2001). The effect of the external environment on strategic orientation illustrates the organization's capacity to survive in today's competitive business environment, the above-mentioned association therefore explained under the premises of RBV.

Furthermore, the effect of strategic orientation (i.e., market orientation, entrepreneurial orientation, technology orientation, customer orientation, interaction orientation etc) on organization's success, performance and entrepreneurial development demonstrates a firm's capacity to combine resources to innovate and improve performance, therefore also explained under the premises of RBV theory.




**Source:** Adapted from Barney (1991).

**Figure 8:** The Resource-Based View of the Firm

### 2.2.2 Schumpeter's Innovation Theory on Entrepreneurship

The innovative theory is one of the most famous theories of entrepreneurship used all around the World. The theory was advanced by one famous scholar, Joseph Alois Schumpeter an Austrian political economist in 1991. Schumpeter was the first scholar to theorize about entrepreneurship and the field owed much to his contributions. According to Joseph Schumpeter, the role of innovation or entrepreneur in economic development has the courage and imagination to handle the system and be able to transfer theory in to reality.

His fundamental theories are often referred to as Mark I and Mark II *(*Fontana, Roberto et. al., 2012). In Mark I, Schumpeter argued that the innovation and technological change of a nation come from the entrepreneurs, or wild spirits. He coined the word Unternehmergeist, German for entrepreneur-spirit, and asserted that "... the doing of new things or the doing of things that are already being done in a new way" stemmed directly from the efforts of entrepreneurs (Schumpeter, 1947).

Schumpeter developed Mark II while a professor at Harvard. Many social economists and popular authors of the day argued that large businesses had a negative effect on the standard of living of ordinary people. Contrary to this prevailing opinion, Schumpeter argued that the agents that drive innovation and the economy are large companies which have the capital to invest in research and development of new products and services and to deliver them to customers more cheaply, thus raising their standard of living.

Schumpeter believes that creativity and innovation is the key factor in any entrepreneur's field of specialization. He argued that knowledge can only go a long way in helping an entrepreneur to become successful. He believed development as consisting of a process which involved reformation on various equipment's of productions, outputs, marketing and industrial organizations.

Schumpeter looks at entrepreneurship as innovation and not imitation. Schumpeter's innovator as an economic and social leader does not care much about economic profits and

only joy he gets from being an innovator and being a server to his society. Schumpeter's entrepreneur is an innovator in the entrepreneurship arena. In the Schumpeterian theory, the entrepreneur moves the economy out of the static equilibrium. Marz (1991), states that Schumpeter hardly denied that the process of accumulation is the ladder to social power and social prestige; but he thought the very mainspring of the exercise of the entrepreneurial function is the powerful will to assert economic leadership. The joy of carrying through innovations is the primary motive, the acquisition of social power a subsidiary to it. The entrepreneur is not (necessarily) the one who invents new combinations but the one who identifies how these new combinations can be applied in production. This line of reasoning implies that a business owner is considered an entrepreneur only if he is carrying out new combinations. The theory emphasizes that entrepreneur moves the economic system out of the static equilibrium by creating new products or production methods thereby rendering others obsolete. This is the process of creative destruction (creating uncertainty) which Schumpeter saw as the driving force behind economic development (Schumpeter, 1949).

However, Schumpeter viewed innovation along with knowledge as the main catalysts of successful entrepreneurship. He believed that creativity was necessary if an entrepreneur was to accumulate a lot of profits in a heavily competitive market.

The concept of innovation and its corollary development embraces five functions;

1. Introduction of a new good
2. Introduction of a new method of production
3. Opening of a new market
4. Conquest of a new source of supply of raw materials and
5. Carrying out of a new organization of any industry

Schumpeter represents a synthesis of different notions of entrepreneurship. His concept of innovation included elements of risk taking, superintendence and co-ordination.

According to Schumpeter, Development is not an automatic process; bur must be deliberately and actively promoted by some agency within the system. Schumpeter called the agent who initiates the above as entrepreneur. He is the agent who provides economic leadership that changes the initial conditions of the economy and causes discontinuous dynamic changes. By nature he is neither technician, nor a financier but he is considered an innovator. Entrepreneurship is not a profession or a permanent occupation and therefore, it cannot formulate a social class like capitalist. Psychological, entrepreneurs are not solely motivated by profit.

**A. Features of Schumpeter Theory**

i. High degree of risk and uncertainty in Schumpeterian World

ii. Highly motivated and talented individual

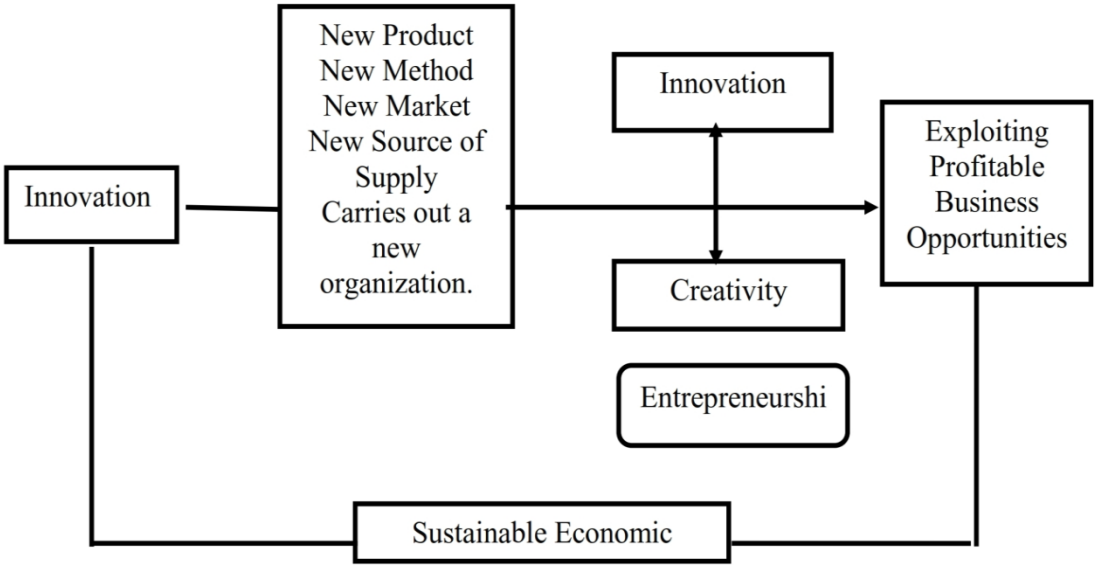
iii. Profit is merely an part of objectives of entrepreneurs

iv. Progress under capitalism is much slower than actually it is

v. It is leadership rather than ownership which matters.

Many business people support this theory, and hence its popularity over other theories of entrepreneurship. Innovative resource recombination has been suggested to be the result of a high alertness to new opportunities (Zahra & Wiklund, 2000). The ability to identify and commit oneself to new opportunities has been seen as key entrepreneurial features of individuals (Casson, 1982; Kirzner 1973; Knight, 1942; Schumpeter, 1934) and firms (Stevenson 1983; Wiklund, 1998; Zahra, 1991). Stevenson (1983) suggests that entrepreneurial firms base their strategies solely on opportunities that exist in the environment, using opportunities as a starting point for developing strategies. They tend to pursue new opportunities without regard to resources currently controlled, identifying the resources necessary to exploit an opportunity after they have assessed a new strategy. Administratively managed companies, on the other hand, tend to look more at the resources they already control when developing strategies. They may be aware of the opportunities in

the environment but tend to think in terms of how to best utilize and exploit the resources they already control as efficiently as possible in order to exploit new opportunities. According to Schumpeter, it is the introduction of new product and the continual improvements in the existing ones that lead to development. The relevance of this theory to this considering the firms under investigation.




**Source:** Adapted from Schumpeter, (1947).

**Figure: 9** Schumpeter's Innovation Theory on Entrepreneurship

### 2.2.3 Contingency Theory

Historically, contingency theory perspective originated with the work of Joan Woodward (1958), who argued that technologies directly determine differences in such organizational attributes as span of control, centralization of authority, and the formalization of rules and procedures. Some important categories of business that can benefit from contingency theory include: Technology, Suppliers & distributors, Consumer interest groups, Customers & competitors, Government and Unions. Contingency theory has sought to formulate broad generalizations about the formal structures that are typically associated with or best fit the use of different technologies. A contingency theory is an organizational theory that claims that

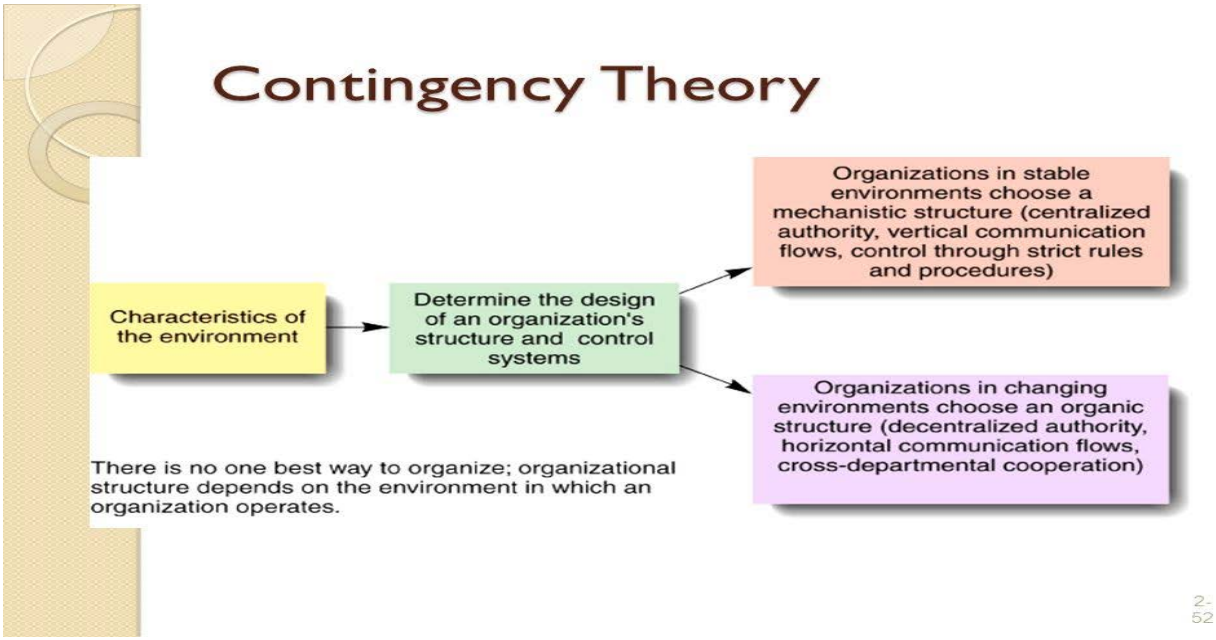
there is no best way to organize a firm, to lead a firm and/or to make decisions. Instead, the optimal course of action is contingent (dependent) upon the internal and external situation.

The contingency theory has emerged to criticize the classical management theory from neglecting contingency factors. It is acknowledged that both Max Weber with bureaucracy theory and Frederic Taylor with scientific management theory pay too much attention on internal organization (Pheng & Shang, 2011). The basic premise of contingency theory is that firms achieve the best performance when their structure is relevant to deal with the contingencies imposed by their size, technology, and environment (Donaldson, 1995). Contingency theory has intention to understand how firms align their expected performance with both internal and external business environment (Homburg, Artz & Wieseke, 2012). This theory views that external environment is key determinant to firm performance. As organization, firms are amenable to the influence of business environment. Specifically, this theory lays emphasis on questions on whether and under which contingency variables contribute to firm performance. Hence, it is necessary that firms do not only acquire and develop their resources but also need to enhance the capability to deal with environmental turbulence.

Contingency-based organizations gain competitive advantage through assessing their business environment and set strategy, which are appropriate for each level of environmental turbulence (Johannesson & Palona, 2010). That involves integration whole in firm's interactions with business environment. That present's dynamic capability is equated with environmental turbulence (Schilke, 2014). Hence, contingency theory indicates behavior of firms, which is necessary for survival. Firms are considered as contingency-based organization when adapting to business environment, such as a choice of product market domain to deal with entrepreneurial problem, choice of innovation to deal with engineering problem, and reducing uncertainty to overcome administration problem (Puranam, Alexy, & Reitzig, 2014). The generic contingency factors include implementing strategy, organization

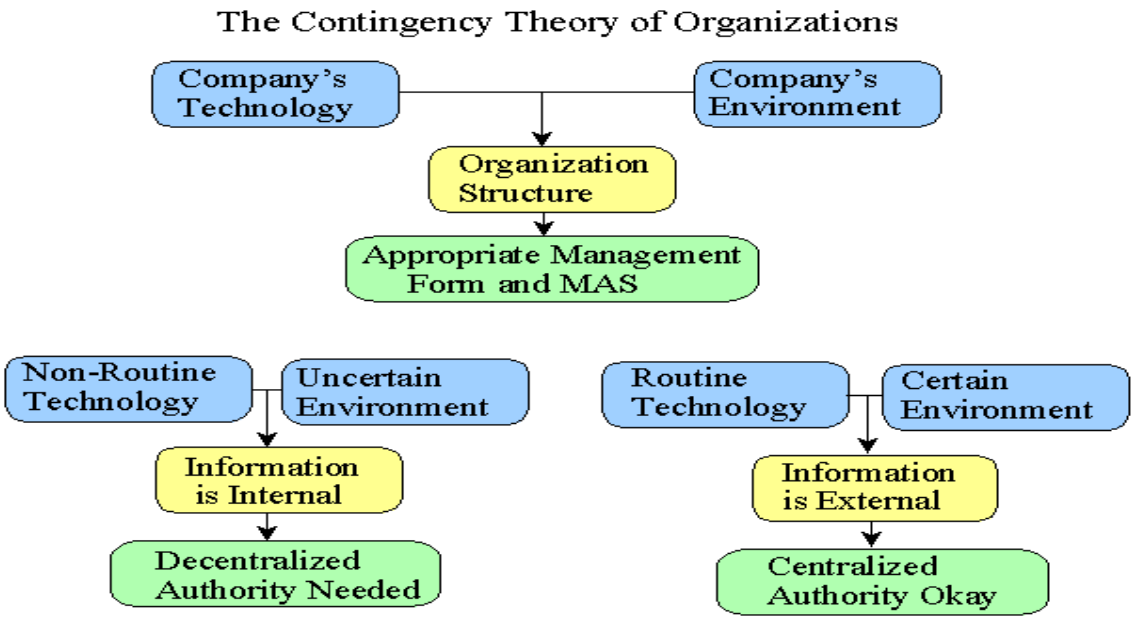
size and structure, information system. The environment impacts the organization and managers must be flexible to react to environment changes. The way the organization is designed, control systems selected, depend on the environment. Technological environment change rapidly, so must managers.

To conclude, though the entire above theories suit to explain strategic orientation as it relates to entrepreneurial orientation of ICT firms. However, the Resource-Based View (RBV) underpins this study with a major focus on how the ICT firms' resources or knowledge, develop and affect its entrepreneurial abilities. This shows that ICT firms that have more resources at their disposal are likely to have a greater capability to respond to the demands arising out of a higher level of the different strategic orientation dimension. Consequently, a better implementation of the strategic orientation strategy means that firms can derive more benefits from these strategies. Thus, firm resources moderate the relationship between various dimensions of strategic orientation and entrepreneurial development.




**Source:** Adapted from Johannesson & Palona, (2010).

**Figure10:** The Contingency Theory




**Source:** Adapted from Joan Woodward (1958).

**Figure 11:** The Contingency Theory of Organizations

## 2.3 Empirical Review

A number of empirical studies have been conducted in the area of strategic orientation of firms. Among these studies, is the study conducted by Obeidat (2016) who examined the effect of strategic orientation on organizational performance. Data was gathered from the three telecommunication companies that exist in Jordan. The data was analyzed using Structural Equation Modeling (SEM) and the results revealed that strategic orientation had a significant effect on innovation but not on organizational performance. It was also found that innovation significantly affected organizational performance. Finally, the results indicated that innovation mediated the path between strategic orientation and organizational performance, but only partially.

Meer and Tilburg (2012) examined strategic orientations and its effect on innovation performance. The study utilized three (3) strategic orientation constructs namely; resource orientation (RO), market orientation (MO), and learning orientation (LO). Data was collected using questionnaires to identify strategic orientation characteristics and innovation performance at manufacturing SME's in the Netherlands. Utilizing the regression analysis the results revealed that resource orientation leads to radical innovation where it develops a unique resource base and searches the environment for channels to exploit. Market orientation leads to incremental innovations where it gathers information about customer needs, competitors and transfers this information throughout the organization to fully exploit it. The results further revealed that learning orientation influences radical innovation performance.

Onyema (2014) examined the effects of entrepreneurial orientations on organizational learning in a manufacturing firm in Nigeria. The data for the study was collected through questionnaire administered on different categories of staff of Unilever Nig. Plc. The data collected was analyzed using multiple regression, frequency counts, percentages and Pearson's correlation analysis. The result of the study indicated that entrepreneurial

orientation as measured by risk taking behaviour, proactiveness and competitive aggressiveness has positive and significant impact on organizational learning. The conclusion from the study is that the enterprises especially small and medium scale ones, must learn and apply knowledge of such learning to adjustment strategies in order to take advantage of emerging opportunities.

Gaur, Vasudevan and Guar (2013) investigated the link between market orientation and manufacturing performance for small and medium enterprises in India. The study collected the data for this research through intensive surveys of the CEOs or top managers of small and medium-sized enterprises in India. The study utilized scales, well established in literature, and revalidated them for the Indian context. It also utilized confirmatory factor analysis for scale validation, and hierarchical regression analysis for testing the hypotheses. The study found a positive link between two sub-dimensions of market orientation; customer orientation and inter-functional coordination and manufacturing performance. Competitor orientation, however, did not have a positive impact on manufacturing performance.

Nasir, Al Mamun and Breen (2017) conducted a study on strategic orientation and performance of SMEs in Malaysia. The study adopted a cross-sectional design and used the stratified random sampling method to select the respondents. A sample of 1,500 SME firms was randomly selected using the ordinary Least Square regression, the study revealed that entrepreneurial and market orientations have a positive effect on superior firm performance.

Abid (2017) conducted an empirical research on impact of strategic orientation on new product success with mediation of new product development knowledge management capabilities. Using the multiple regression analysis, strategic orientation exerts a positive and significant impact on new product success and in the case for mediation of new product development knowledge management capabilities; the aforesaid relationship becomes stronger and thus it means that in the presence of NPD-KMC, strategic orientation accounts for causing the incremental changes within the new product success.

Laukkanen, Nagy, Hirvonen, Reijonen, and Pasanen (2013) examined the effect of strategic orientations on business performance of SMEs in Finland and Hungary. An extensive data was collected from 1,120 respondents in Hungary and Finland. Confirmatory factor analysis and structural equation modeling was used in the analysis of the study. The results revealed that entrepreneurial orientation, market orientation and brand orientation have a positive effect on business growth in SMEs in both Hungary and Finland through brand and market performance. With regard to learning orientation, a positive yet somewhat weak effect on growth is found only in the Hungarian sample. The moderation analysis reveals that country moderates several of the hypothesized paths from SOs to business performance.

Batra, Sharma, Mukund and Neharika, (2015) examined strategic orientations and innovation of SMES in India. Data was collected from owners or senior executives of 162 manufacturing SMEs in the Punjab region of India. Using the regression analysis, the results of the study revealed that while customer orientation has been found to enable innovation for large firms, it does not directly facilitate innovation for Indian SMEs. The customer-oriented SMEs create successful innovation through better utilization of their dynamic resources.

Abiodun and Ibidunni (2014) carried out a research on Strategic orientation and performance of agro - based firms in transition economy. The study based on questionnaires administered to selected Agro-based firms in Lagos and Ogun utilized descriptive statistics, Pearson's correlation to analyze the data obtained for the study. Results of data analysis showed that there exist positive relationship between strategic orientation dimensions and corporate performance. However, riskiness dimension was found not to correlate with financial and business dimensions of performance.

Lee (2016) carried out a study on firms' strategic orientations, innovativeness and performance with large Korean companies. The factor analysis and structural modeling were employed to analyze the data generated. The results of the analysis showed that customer

orientation, competitor orientation and technology orientation positively influence the innovativeness, which contribute to firm performance.

Laforet (2009) carried out a research on strategic orientation and market orientation on innovation of non-high-tech manufacturing SMEs in UK. A mail survey was conducted on a random sample of 60 South Yorkshire non-high-tech small, medium-sized manufacturing enterprises. A hypothesized model, stating company size, strategic and market orientation affect innovation was tested using multiple linear regression analysis.The results confirmed customer orientation has a positive effect on innovation at product, process and organizational level. While strategic orientation had an effect on process innovation.

Grawe, Chen and Daugherty (2009) examined the relationship between strategic orientation, service innovation, and performance. The survey was administered to supply chain executives. Structural equation modeling was used to analyze the relationships among the following constructs: customer orientation, competitor orientation, cost orientation, service innovation, and market performance. The result of the analysis revealed that the relationship between cost orientation and service innovation is insignificant. Also, the relationships between customer orientation and competitor orientation and service innovation were also found to be insignificant.

Spanjol, Mühlmeier and Tomczak (2012) conducted a study on Strategic orientation and product innovation of firms in Germany and Switzerland. Using the Panel regression analysis and structural modeling, the study revealed that customer orientation and technology orientation are positively and significantly associated with incremental innovation and breakthrough innovation.

Mu and Di Benedetto (2011) conducted a study on strategic orientations and new product commercialization: Mediator, moderator, and interplay in USA. Using the correlation and regression analysis, the findings revealed that strategic orientations are positively related to three aspects of new product commercialization, namely new product advantage, new product

newness, and number of new products introduced to the market. Also, the finding revealed that organizational learning mediates the effects of strategic orientations on new product commercialization and that environmental dynamism moderates the effect of strategic orientations on new product commercialization.

Voss and Voss (2000) examined strategic orientation and firm performance in an Artistic environment. Using the correlational matrix and structural modeling, the study revealed a positive association between product orientation and firm performance. Also, positive association between competitor orientation and performance, while customer orientation is associated negatively with firm performance.

O'Regan and Ghobadian (2005) conducted a study on the impact of strategic orientation and environmental perceptions in the UK. The study utilized the quantitative approach based on a random sampling methodology of 1,000 SMEs in UK. Construct validity was tested in the qualitative phase of the research.

Grinstein (2008) examined the relationships between market orientation and alternative strategic orientations. The study employed a meta-analysis procedure to synthesize empirical results on the relationship between market orientation and innovation, learning, entrepreneurial, and employee orientations. The findings revealed that market orientation is strongly correlated with learning, entrepreneurial, and employee orientations, and that it has a moderate positive relationship with innovation orientation.

Zhou, Yim, and Tse (2005) conducted a study on the effects of strategic orientations on technology- and market-based breakthrough innovations. The study employed the ordinary least square regression to analyze the collected data. The study revealed that market orientation has a positive effect on tech-based innovation and a negative impact on market-based innovation. Also, technology orientation is positively associated with tech-based innovation but is not related to market-based innovation.

Yang, Wang, Zhu and Wu (2012) examined the effectiveness of strategic orientations on new product success under different environments of Chinese businesses. Using cluster analysis and an ordinary least squares (OLS) regression model, the results revealed that customer orientation, technology orientation, Inter-functional coordination have a significant and positive relationship with innovation performance. Whereas, competitor orientation has a positive relationship with innovation performance.

Osuagwu (2006) conducted a study on marketing intelligence and planning market orientation in Nigerian companies. The study utilized a contextualized and literature-based research instrument to measure the applications of market orientation constructs by 697 small and large manufacturing and service companies operating in Lagos State of Nigeria. The research instrument showed encouraging evidence of reliability and validity. Data was interpreted by factor analysis. It was found that market orientation was practiced to a reasonable extent among the surveyed companies, and tentatively concluded that market orientation practices were related to the category of business (service versus manufacturing) and its size.

Ho (2014) examined strategic orientations and business performance of High-Tech firms. The structural equation modeling (SEM) and fuzzy set qualitative comparative analysis (fsQCA) were used to analyze the data. The SEM results revealed that while market and entrepreneurial orientations positively affect firm effectiveness and adaptability, relationship and technology orientations have no direct impact on performance. Similarly, no significant interaction effects of strategic orientations on performance were identified. However, the fsQCA results present different evidence by showing that the combination of market and entrepreneurial orientations lead to superior profitability. In fact, other combinations such as entrepreneurial and technology orientations, and market and relationship orientations, lead to superior profitability too. This means that firms can achieve profitability by exploiting

complementary strategic orientations therefore, offering partial support to the complementary assumption.

Tutar, Nart and Bingöl (2015) examined the effects of strategic orientations on innovation capabilities and market performance of firms in Turkey. Using the factor analysis and regression analysis, the study showed that market orientation, entrepreneurship orientation and technology orientation have a significant relationship with market performance in terms on innovativeness and customer satisfaction.

Yeung, Selen, Sum and Huo (2006) examined the link between strategic orientation and financial performance of third-party logistics firms in Hong Kong. The study employed the cluster analysis and ANOVA to analyze the relationship between the variables. The finding revealed that strategic orientation improves customer service in terms of shorter delivery lead time, meeting promised due dates, providing reliable services, and meeting customers' special requests.

Gao, Zhou and Yim, (2007) conducted a study on the effects of demand uncertainty, technological turbulence and competitive intensity on the links between customer, competitor and technology orientations and performance. Using the structural equation modeling the study revealed that customer orientation improves performance when demand uncertainty is low but harms performance when demand uncertainty is high. Competitor orientation is beneficial in all competitive environments. Technology orientation performance shifts over the range of technological turbulence from negative with a low level of technological turbulence to positive if turbulence is high.

Hult, Hurley and Knight (2004) examined the relationship of market orientation, entrepreneurial orientation and learning orientation as antecedents of innovativeness, and the further relationship between innovativeness - business performance in the context of varying market turbulence of 181 large US industrial firms. The study employed the multiple regression analysis to analyze the relationship between variables. The study revealed that

market orientation, entrepreneurial orientation and learning orientation positively affect innovation; however, the effect of market orientation, entrepreneurial orientation and learning orientation is greater under strong market turbulence (no effect under low market turbulence).

Izquierdo and Samaniego (2007) investigated the different effects of market orientation, sales orientation, and product orientation on non-profits economic and social effectiveness of 182 Spanish museums. The data collected was analyzed using the regression analysis. The result of the study revealed that market orientation, product and selling orientations have different effects; Firms should select appropriate orientation depending on their goals.

Keskim (2006) examined the homological relations among market orientation, learning orientation and innovativeness of 157 small firms in Turkey. Using the One-way ANOVA the study revealed that market orientation and learning positively affects innovation that affects performance.

Voss and Voss (2000) examined the impact of three alternative strategic orientations; customer, competitor, and product orientation on a variety of subjective and objective measures of performance in the non-profit professional theatre industry 101 non-profit professional theatres. Using the structural equation modeling (SEM) the result revealed association between different orientation and performance depends on the type of performance measure used. Customer orientation is insignificant in relation to non-profit goals, high rates of intangible and artistic innovation or customers who may not be able to articulate their preferences. Product orientation is revealing to have had a significant effect on non - financial goals.

Zehir and Eren (2007) examined the relationships between customer orientation and learning orientation, corporate entrepreneurship and business performance of 90 medium-to large automotive firms in Turkey. Using the multiple regression analysis, the study revealed that learning orientation and customer orientation have positive effects on new business venturing, self-renewal of the organization, and proactively dimension of entrepreneurship.

Innovativeness and new business dimensions (Entrepreneurial orientation) have a positive effect on business performance. In addition, customer orientation affects positively on business performance.

Zhou et al. (2005) Conceptualizing and testing of a model that links different types of strategic orientations and market forces, through organizational learning, to breakthrough innovations and firm performance of 350 Chinese respondents in consumer product sectors. The study utilized the regression analysis to analyze the data collected. The study revealed that market orientation facilitates technology-based innovations but inhibits innovations that target emerging market segments (i.e. market-based innovations). Technology orientation beneficial to technology-based innovations but has no impact on market-based innovations, entrepreneurial orientation facilitates both types of innovations.

Tajeddini (2010) examined the effect of entrepreneurial orientation, competitive orientation and innovativeness on business performance in 156 Swiss hotels. The study adopted the spearman correlation analysis to reveal that entrepreneurial orientation, competitive orientation and innovativeness simultaneously support business performance in the hotel industry but competitive orientation has no influence on innovativeness.

Paladino (2009) examined the pursuit of both market orientation and resource orientation is feasible, their independent and interdependent effects on financial performance and innovations of 250 top- performing manufacturing companies in Australia. The study employed the descriptive statistics to reveal that firms with high marketing orientation and resources orientation leads to highest financial performance. In addition, firms with high resources orientation and low marketing orientation lead to highest impact on innovations.

Noble et al. (2002) examined the effects of market orientation, competitor orientation, national brand focus and selling orientation, mediating effects of learning and innovativeness on the orientation performance link. The study utilized Panel data analysis. The study

findings revealed that firms with higher levels of competitor orientation, a national brand focus, and selling orientation exhibit superior performance.

Appiah-Adu and Singh (1998) examined the effects of innovation orientation, market dynamism and competitive intensity on the degree of customer orientation. Customer orientation  performance link in 101 UK manufacturing and service firms. Using the multiple regression analysis, the study revealed that both customer and innovation orientation support performance.

Shehu and Mahmood (2014) examined the relationship between market orientation and business performance of Nigerian SMEs. Using the regression analysis the study revealed that there is a significant relationship between market orientation, organization culture and business performances. No relationship between market orientation and SME performance.

Haryanto and Haryono (2015) examined market orientation on innovation type and enterprise performance. The study employed the regression analysis and revealed that proactive market orientation has a positive influence on innovation. While responsive market orientation impact on organization and marketing innovation.

Njeru and Munyoki (2014) examined market orientation on external environment and performance of Tour firms in Kenya. Using the correlation analysis, the study revealed that there is a significant positive correlation between market orientation and tour firm performance.

Ogbonna and Ogwo (2013) conducted a study on the effect of market orientation and corporate performance of insurance firms in Nigeria. Using the regression analysis, the study revealed that there is a positive relationship between market orientation and corporate performance. In addition, age of the firm and market information systems weakly moderate the relationship.

Gloria and Ding (2005) examined market orientation, competitive strategy and firm performance: An empirical study of Chinese firms. Using the panel regression analysis, the

study revealed that customer orientation has a significantly positive impact on firm performance. Competitor orientation has a significantly negative effect on market performance. Inter-functional coordination has an insignificant impact. Customer oriented firms choose different strategies to satisfy customers in different markets.

Otache and Mahmood (2015) investigated the relationship between entrepreneurial orientation and performance of commercial banks in Nigeria and the mediating effect of teamwork on the relationship. Data was collected from 297 bank managers through a self-reported questionnaire. Smart PLS-SEM was used to analyze the data collected and test the hypotheses formulated. The results of the structural model indicated a positive and significant relationship between entrepreneurial orientation and performance. Further evaluation of the structural model showed that teamwork fully mediated the relationship between entrepreneurial orientation and organizational performance. Based on the findings, it was concluded that while entrepreneurial orientation may be positively related to organizational performance, its impact on organizational performance will be greater if employees work collaboratively as a team.

## 2.4 Summary of Reviewed Literature

Surveying the empirical studies above, it is clear that empirical studies from Nigeria are relatively scanty and have just started gathering momentum. Whereas, majority of the empirical evidence established their stance on the relationship between strategic orientation and organization performance. Also, based on the studies investigating orientation pairs, it appears reasonable to assume that majority of the studies in Nigeria only concentrate on entrepreneurial orientation and marketing orientation (Atuahene-Gima and Ko 2001; Baker and Sinkula 2009; Becherer and Maurer 1997; Frishammar and Hörte 2007; Hult et al. 2004; Li et al. 2008; Schindehutte et al. 2008;) but studies actually incorporating the technology, learning and entrepreneurial orientation within the same study are few (Aloulou and Fayolle 2005; Kaya and Seyrek 2005; Li 2005). However, only one study (Zhou et al. 2005) was

found to investigate four strategic orientations construct simultaneously, again focusing on the differential effects of different orientations rather than attempts to combine the views. Therefore, in terms of strategic orientation research, this Dissertation takes some steps into uncharted territory in pursuing its objective of drawing together these different views. Hence, to investigate the effects of different strategic orientations dimensions (market orientation, technology orientation, learning orientation, resources orientation, and entrepreneurial orientation) on entrepreneurial development (competitive advantage, product innovation, service quality and competitive advantage) of ICT firms in North-Central, Nigeria so as to empirically fill the gap in literature.

## 2.5 Gap in Knowledge

In reading thoroughly the literature on strategic orientations and entrepreneurial development of Information and Communication Technology firms, this dissertation identified a number of gaps, especially where the effect of strategic orientation and entrepreneurial development of on the performance Information and Communication Technology firms in North-Central, Nigeria context are concerned. The first area of concern is that most of the literature is based on research conducted in Foreign Countries; there have been little published papers about strategic orientations and entrepreneurial development on the performance of Information and Communication Technology firms in Nigeria generally and in North-Central, Nigeria in particular. The most literature on strategic management, business administration and entrepreneurship in Nigeria paid little or no attention to strategic orientations and how it affects entrepreneurial development of Information and Communication Technology firms in Nigeria.

The second aspect in the literature that is unsatisfactory is the scarcity of local textbook and studies that discuss issues about strategic orientations and entrepreneurial development of Information and Communication Technology firms in Nigeria. In spite of the prospect Information and Communication Technology sector holds in Nigeria, the issue of

entrepreneurial development of Information and Communication Technology remained largely unexplored in the business and management literature. This informs and necessities this study so as to like cover the gap in knowledge and contribute to existing body of knowledge.

# CHAPTER THREE

# METHODOLOGY

## 3.0 Introduction

In this chapter, the following procedures were employed to achieve the research objectives. The procedures include: Research design, area of the study, pupation of the study, sample size and sampling technique, sources of data, description of collection instrument, validity of instrument, reliability of instrument, administration data collection instrument, method of data analysis and operational measure of variables.

## 3.1 Research Design

Research design is a framework or plan that is used as a guide in collecting and analyzing the data of the study. It is a model of proof that allows the researcher to draw inferences concerning causal relations among the variables under investigation (Nachmias & Nachmias, 1976). This study adopted the cross - sectional (survey) method to enable the researcher objectively and empirically evaluate strategic orientation and entrepreneurial development of Information and Communication Technology firms through communication with respondents by administering questionnaire and interview methods.

## 3.2 Area of the Study

The area of this study, therefore, consists of all the functional Information and Communication Technology Firms operating in the North-Central of Nigeria namely; FCT Abuja, Kogi, Benue, Nassarawa, Plateau, Niger and Kwara State. North Central Nigeria (also known as the Middle-Belt Region) consists of the seven (7) States situated geographically spanning from the west, around the confluence of the River Niger and the River Benue. The region itself is rich in natural land features and boasts some of Nigeria's most exciting scenery. The region is also home to many historical and colonial relics.

**i. Abuja, Federal Capital Territory - Centre of Unity**

Abuja created in 1976, is the capital city of Nigeria, and as such the region harbours most administrative buildings of the government of Nigeria. Abuja only attained the status Nigeria's Capital on the 12th of December, 1991, when all administrative offices were officially moved from Lagos. The site for the new capital was chosen because it's a central location with easy accessibility, favourable climate, relatively low population density, and the availability of land for future expansion. Not only was the city planned, but the entire environment is a beauty to behold. Abuja is dotted with abundant tourist sites and is surrounded by many hills, highlands, Savannah grassland, and Tropical Rainforests. The 2006 census records that the city of Abuja had a population of 76,298 persons, which makes it one of the ten most populous cities in Nigeria. Abuja's landmass is characterized by Aso Rock, a 400-metre monolith denuded by water erosion.

Available at https://www.myguidenigeria.com/regionalinfo/north-cnetral-region retrieved on the 12th October (2018).

**ii. Benue State - Food Basket of the Nation**

Benue State is located in the mid-eastern region of Nigeria and it has a population of about 4,256, 641 (2006 population census). The state was carved out from the former Benue-Plateau State in 1976 and was named after the River Benue. The capital city is Markurdi and their main ethnic groups are Tiv, Idoma, Igede, Etulo and Abakwa. Benue State shares boundaries with Nasarawa State to the north, Taraba State to the east, Cross River State to the south, Enugu to the south-west and Kogi to the west. Due to the geographical location, Benue is often thought of as the 'food basket of the nation', as it has a rich agricultural region. Some of the crops grown in the State are: potatoes, cassava, soya bean, guinea corn, flax, yam, sesame rice and groundnuts. Available at https://www.myguidenigeria.com/regionalinfo/north-cnetral-region retrieved on the 12th October (2018).

**iii. Kogi State - The Confluence State**

Kogi state is located in the central region of Nigeria; it was carved out from parts of former Kwara and Benue States on August 27, 1991 with Lokoja as the administrative headquarters. Lokoja which is the first administrative capital of modern-day Nigeria is steeped in Nigerian history as the name "Nigeria" was coined there by Flora Shaw who became the wife of Baron Lugard (A British colonial administrator in the colonial era).
Kogi State is popularly called the "Confluence State" because of its location. The State is located at the meeting point of the Rivers Niger and Benue; the confluence of both rivers. It has 21 LGA's comprising of several ethnic language groups. But the three main ones are: Igala, Ebira, and Okun. Other minor groups include Nupe, Oworo, Bassa Nge, Bassa Komo, Kakanda, Kupa, Gwari, etc.

Available at https://www.myguidenigeria.com/regionalinfo/north-cnetral-region retrieved on the 12th October (2018).

**iv. Kwara State - State of Harmony**

Kwara State is located in the western part of the Middle-Belt and was carved out of the former Kwara and Benue States in 1991. The State was created on May 27, 1967 under the Military regime of General Yakubu Gowon. It was among the first of 12 states created to replace the nation's four regions. The state was initially named the West Central State but was renamed Kwara (a local name for the river Niger) when more states were carved out of it. Kwara State is also referred to as 'The State of Harmony' because of the peaceful relations among its many ethnic groups, which include Yoruba, Nupe, Bariba and Fulani tribes. It has its capital in the ancient city of Ilorin, with a history that dates back to the Oyo Empire. Available at https://www.myguidenigeria.com/regionalinfo/north-cnetral-region retrieved on the 12th October (2018).

## V. Nasarawa State - Home of Solid Minerals

Nasarawa State was created in 1996 with its capital as Lafia and has an estimated population of 1.5 million people. The state shares boundaries with Kaduna, Benue, Plateau, Taraba, the Federal Capital Territory and Kogi State. Nasarawa also has 13 Local Government Areas and the various ethnic groups within the state include: Alago, Aho, Ake, Agatu, Bassa, Eggon, Gwandara, Hausa and Kanuri, amongst others. Some important cities and towns include Lafia, Akwanga, Keffi, Karu, Wamba, Eggon, Doma, Nasarawa, etc. The major occupations of the people in Nasarawa include farming, fishing, dyeing, weaving, carving and blacksmithery. The state is also endowed with various mineral resources that offer potential for economically viable industrial and agricultural development projects which include: tin, marble, coal, semi-precious stones, barytes and aqua marine. There are also plenty of untapped energy resources - hence the slogan 'Home of Solid Minerals. Available at https://www.myguidenigeria.com/regionalinfo/north-cnetral-region retrieved on the 12th October (2018).

## vi. Niger State - Power State

Niger State is in the north-western region of Nigeria and it is the largest of the states in the country. Minna is the State capital and other major cities include Bida, Kontagora and Suleja. Niger State gets its name from the River Niger which forms one of its natural borders. Due to its location, Niger State is home to two of the country's major hydroelectric power stations: the Kainji Dam and the Shiroro Dam - hence why it is called the 'Power State'. The 3 principal ethnic groups here are the Nupe, the Gwari and the Hausa. Other minority groups include the Koro, the Kadara, the Kambari, the Kamuku, the Pangu, the Bassa, the Bauchi, the Fulani, etc. Niger State is also home to Kainji National Park, the largest National Park in Nigeria, which contains Kainji Lake, the Borgu Game Reserve and the Zugurma Game Reserve. The state has several ethnic groups including; Nupe, Gbagyi, Hausa, Kadara, Koro, Barab, Kakanda, Gana Gana, Dibo, Kambari, Kamuku, Pangu, Dukawa, Gwada and Ingwai.

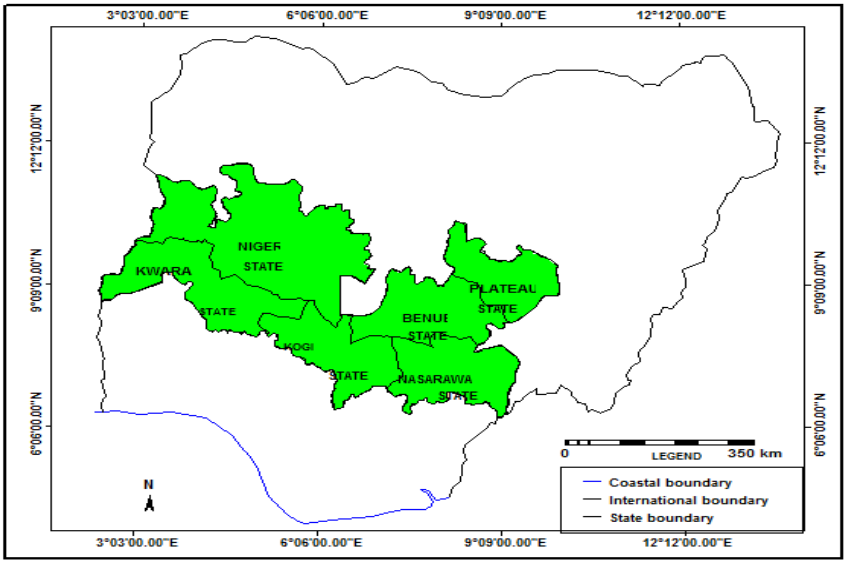
Available at https://www.myguidenigeria.com/regionalinfo/north-cnetral-region retrieved on the 12th October (2018).

vii. **Plateau State - Home of Peace and Tourism**

Plateau State known as the 'Home of Peace and Tourism' is considered to be the twelfth largest state in Nigeria, with its administrative headquarters in Jos. The name 'Plateau' was gotten from the picturesque of Jos Plateau, which is a mountainous area in the northern part of the state with a captivating rock formation. The population of the state is place at 4, 178, 712 million during the 2006 census. The main occupation of the people is agriculture and mining (which is an old industry). The altitude of Plateau State is about 1,200 meters, with the region bordered by Bauchi to the north-east, Kaduna to the north-west, Nasarawa to the south-west and Taraba to the South-East.

Available at https://www.myguidenigeria.com/regionalinfo/north-cnetral-region retrieved on the 12th October (2018).

**Pictorial Representation of North-Central States**




**Source:** https://www.myguidenigeria.com/regionalinfo/north-cnetral-region (2018).

### 3.3 Population of the Study

The population of this study entails all the elements that make up the largest population. In other words, the population of a study constitutes those from whom the researcher seeks information and to whom the generalization of the study is applicable. It could be organizations, individuals, geographical areas etc. (Okeafor, 1998). The target population of this study, therefore, consists of all the ICT companies operating in the North Central of Nigeria namely; Abuja, Kogi, Benue, Nassarawa, Plateau, Niger and Kwara State. However, as a result of the nature of study, the accessible population consists of 169 senior management staff from the twenty five (25) Information and Communication Technology firms operating in forty three (43) locations in North-Central, Nigeria. The choice of the population adopted was because they are the only category of staff that is concerned with the strategy of the company. The population of the study is stated in the table below;

**Table 4: Population of the Study**

| **Abuja** | | |
|---|---|---|
| **SN** | **Names of ICTs Firms** | **No.** |
| 1 | Multinational Mobile Telecommunication (MTN) | 5 |
| 2 | Globalcom Limited (GLO) | 5 |
| 3 | Google | 5 |
| 4 | MainOne | 3 |
| 5 | Huawei | 4 |
| 6 | Interswitch Limited | 5 |
| 7 | Microsoft | 5 |
| 8 | Computer Warehouse Group | 5 |
| 9 | Airtel Nigeria | 5 |
| 10 | Zinox Technologies Limited | 5 |
| 11 | Omatek | 4 |
| 12 | DataFlex | 3 |
| 13 | IBM Nigeria | 3 |
| 14 | Chams Plc | 3 |
| 15 | Cloudware Technologies | 3 |
| 16 | DHL Express Nigeria | 3 |
| 17 | DAAR Communications (AIT) | 2 |
| 18 | Oracle | 3 |
| 19 | Galaxy Backbone | 3 |
| 20 | Nigerian Communications Satellite Limited (NIGCOMSAT) | 3 |
| **Total** | | **77** |

| Kogi State | | |
|---|---|---|
| **SN** | **Names of ICT Firms** | **No.** |
| 1 | Multinational Mobile Telecommunication (MTN) | 4 |
| 2 | Globalcom Limited (GLO) | 4 |
| 3 | Grace FM 95.5 | 4 |
| 4 | Airtel Nigeria | 4 |
| **Total** | | **16** |
| **Benue State** | | |
| **SN** | **Names of ICTs Firms** | **No.** |
| 1 | Multinational Mobile Telecommunication (MTN) | 4 |
| 2 | Globalcom Limited (GLO) | 4 |
| 3 | Joy FM 96.5 | 4 |
| 4 | Airtel Nigeria | 4 |
| 5 | Panet Technologies Ltd | 4 |
| 6 | Xttech Global Services | 4 |
| **Total** | | **24** |
| **Nassarawa State** | | |
| **SN** | **Names of ICTs Firms** | **No.** |
| 1 | Multinational Mobile Telecommunication (MTN) | 4 |
| 2 | Globalcom Limited (GLO) | 4 |
| 3 | Airtel Nigeria | 4 |
| **Total** | | **12** |
| **Niger State** | | |
| **SN** | **Names of ICTs Firms** | **No.** |
| 1 | Multinational Mobile Telecommunication (MTN) | 4 |
| 2 | Globalcom Limited (GLO) | 4 |
| 3 | Airtel Nigeria | 4 |
| 4 | United Parcel Services | 4 |
| **Total** | | **16** |

| Plateau State | | |
|---|---|---|
| **SN** | **Names of ICTs Firms** | **No.** |
| 1 | Multinational Mobile Telecommunication (MTN) | 4 |
| 2 | Globalcom Limited (GLO) | 4 |
| 3 | Airtel Nigeria | 4 |
| **Total** | | **12** |
| **Kwara State** | | |
| **SN** | **Names of ICTs Firms** | **No.** |
| 1 | Multinational Mobile Telecommunication (MTN) | 4 |
| 2 | Globalcom Limited (GLO) | 4 |
| 3 | Airtel Nigeria | 4 |
| **Total** | | **12** |

***Source:*** Researcher's Compilation, (2018)

### 3.3.1 Sample Size

Therefore, the entire population of 169 senior management staff of Information and Communication Technology firms in the North-Central region representing 100% of the population was purposively selected to be the sample of the study. The choice of the researcher using the entire population is because the population is handy, manageable and accessible to the researcher. However, the main criteria for choosing Information and Communication Technology firms is that the firms must be economically active and must have been established for three or more years in one or more markets.

### 3.3.2 Sampling Technique

Sampling procedure is the method of delineating the sample from the population of study. The nature of study determines the sampling techniques appropriate to the study Armelo, (2001). This study adopted the purposive sampling technique since it is a sampling strategy in which the researcher selects respondents who are assumed to have similar characteristics of the overall population. The justification for this sampling approach is anchored on the respondents' unwillingness to supply information in some of the firms intended for the study and non-response from others to consent to use the firm. Therefore, participants and firms willingness to participate in the study was a key issue for inclusion in the sample. In each of the sampled ICT firms the top hierarchies form strata which were purposefully sampled to include senior management staff. This is because strategic issues demand the attention of senior management staff which is usually ranked at the top echelon within the organization. Low cadre staff, below the rank of managers was excluded from the sample. However, the researcher identified the senior management staff of the respective ICT firms and once such staff is identified, a copy of the questionnaire item was given to him/her until the desired sample size of 169 was attained.

## 3.4 Sources of Data

The data for this study is obtained from one source, mainly primary source through the structured questionnaire administered on the selected respondents. Primary data are obtained from the respondents through the use of a questionnaire.

## 3.5 Description of Data Collection Instrument

The questionnaire is the main instrument that was used to gather information from eligible respondents in this study. The questionnaire was carefully structured by taking into consideration factors critical to the quality of instrument developed. For the purpose of this study, data is collected by both printed and an online versions of questionnaire constructed using Google form via email. However, the question for the questionnaire described in this study is closed-ended. The questionnaire was divided into two parts for administrative convenience; Part A and B. Part A was based on personal data of the respondent and part B which comprises five-point rating scale questions ranging from Strongly Agree (5), Agree (4), Disagree (3), Strongly Disagree (2) and Undecided (1) seek to evaluate strategic orientation and entrepreneurial development of ICT firms in North-Central, Nigeria.

## 3.6 Validity of Instruments

In establishing the face validity of the instrument in this research, the drafted questionnaire was given to experts in the Department of Educational Foundation, Nnamdi Azikiwe University for contributions, corrections and approval before administering to the sample of the population. The instrument was also presented to few strategic management experts to appraise the instrument to ensure that it measured what it is supposed to measure.

## 3.7 Reliability of Instruments

To test the reliability of the instrument, a pilot test was performed. This approach involved the administration of the drafted questionnaire to ten (10) senior management staff of firms other than ICT firms before the actual study. Data from the questionnaire was collected and tested to determine the reliability of the instrument using the Cronbach Alpha Method

provided by Statistical Package for Social Sciences (SPSS 20.0). Thus, a content validity index of at least 0.70 which makes the instrument be declared reasonably content valid (Udofia, 2011). The result of the reliability test for the entire instrument was presented in table 1 below;

**Table 5: Reliability Statistics**

| | **Anchor** | **No. of Items** | **Cronbach Alpha** |
|---|---|---|---|
| Marketing Orientation | 5 Points | 5 | 0.82 |
| Technology Orientation | 5 Points | 5 | 0.78 |
| Learning Orientation | 5 Points | 5 | 0.83 |
| Resources Orientation | 5 points | 5 | 0.85 |
| Entrepreneurial Orientation | 5 Point | 5 | 0.74 |
| Product Innovation | 5 Point | 5 | 0.88 |
| Competitive Advantage | 5 Point | 5 | 0.77 |
| Service Quality | 5 Point | 5 | 0.76 |
| **Total** | | | **0.84** |

**Source: SPSS Output**

The Cronbach's alpha conducted shows that all the variables have internal consistencies above the value 0.70 as indicated in the Table above. Therefore, the questionnaire items are declared reasonably content valid to be used for the analysis.

## 3.8 Administration of Data Collection Instruments

In the distribution of the printed copy of the questionnaire, the researcher obtained permission from the Head of Operations of the respective ICT firms; thereafter the questionnaire was distributed and administered to the senior management staff. And where the respondents are not accessible, the online version of the questionnaire was utilized. However, the following steps are taken into account for the invitation:

i. Sending the email to their official emails

ii. Personal message about researchers profile and purpose of study

iii. Clear privacy statement of use of data

iv. Send reminders

In all, a total of one hundred and sixty-nine (169) questionnaires were distributed to the respondents who were allowed two days to respond to the items.

## 3.9 Method of Data Analysis

To analyze the data obtained for this study, the descriptive and inferential statistics was used. The descriptive statistics employed consist of frequency, percentage and mean. This was performed on all categories of data to show their general trends and for an informed decision to be derived from the data set. However, for the inferential statistics, the spearman's rank order correlation method was employed. The purpose of spearman rank order correlation method is to test the relationship between the independent and dependent variables measured on ordinal scale. The spearman rank order correlation method was used to test of the hypotheses of the study. Mathematically, the spearman's rank order is expressed by the formula presented below.

$$Rs = 1 \frac{-6\sum^{d2}}{n\,(n2-1)}$$

Where

Rs = Spearman's Rank Order Correlation Co-efficient d

$\sum^{d2}$ = Sum of the Squared differences of X and Y

n = number of set of ranking

To test the significance of the relationship between X and Y, the Z formula will be used which is expressed thus:

$$Z = r\sqrt{n-1}$$

**Where:**

r = Spearman correlation Co-efficient

n = number of set of ranking

**Decision Rule:** Accept Ho if the Z calculated value is less than the Z critical, otherwise, reject Ho.

## 3.10 Operational Measure of Variables

The constructs for the questionnaire are operationalizing in this section. These constructs are all used for quantitative studies and are measured as thus;

i. **Strategic Orientation (SO):** This is the independent variable of the study. Strategic orientation decomposed in terms of market orientation, technology orientation, resource orientation, learning orientation and entrepreneurial orientation. Items in the various construct were measured using five point likert scale ranging from “strongly agree, agree, and disagree, undecided to strongly disagree” and a total of all items computed from each respondent reflected in strategic orientation.

ii. **Entrepreneurship Development (ED):** This is the dependent variable of the study. This is decomposed in terms of market share, product innovation, competitive advantage and service quality of the selected ICT firms. Items in the construct were measured using five point likert scale ranging from “strongly agree, agree, disagree, undecided to strongly disagree” basing on literature that was gathered.

iii. **Performance:** This is the moderating variable of the study. Moderating variable is a variable that explains a relation or provides a causal link between other variables. Performance is the analysis of firm outcomes as compared to goals and objectives. Performance can be measure from two perspectives, either financial or non-financial performance**.**

# CHAPTER FOUR

# DATA PRESENTATION AND ANALYSIS

## 4.1 Introduction

The main objective of this study is to examine effect of strategic orientation and entrepreneurial development on the performance of Information and Communication Technology (ICT) firms in North-Central, Nigeria. This chapter presents the results and analyses the data collected in a bid to answering the research questions and test the hypotheses. In order to achieve this objective, this chapter focuses on data presentation, analysis and the interpretation of results based on the statistical technique descriptive statistics (such as tables showing frequencies, percentages and mean) were used to summarize findings from the survey and adopted for the study. The test of research hypotheses is also carried out with the aid of spearman rank order correlation analytical tool in order to provide answers to the research questions stated in chapter one.

The presentation is guided by the research objectives and statistics were generated with the aim of generating responses to the research questions.

## 4.2 Data Presentation and Analysis

It is worth knowing that out of the 169 copies of questionnaires distributed to the respondents only 151 copies representing 89.35% of the total number of the questionnaires were successfully filled and returned. While 18 copies representing 10.75% were not returned and could not be used for the analysis. However, the analysis was based on 151 questionnaires completed and returned.

### 4.2.1 Demographic Characteristics of Respondent

This section presented the findings and results of the study in relation to the characteristics of the respondents. Findings and results were presented in the form of table and descriptive statements.

**Table 6: Showing Demographic Characteristics of Respondents**

| Response | | Frequency | Percentage |
|---|---|---|---|
| Gender | Male | 91 | 60 |
| | Female | 60 | 40 |
| | **Total** | **151** | **100** |
| Age | 15-25 | 59 | 37 |
| | 26-36 | 74 | 49 |
| | 37-47 | 15 | 10 |
| | 48-90 | 3 | 2 |
| | **Total** | **151** | **100** |
| Marital Status | Single | 52 | 33 |
| | Married | 99 | 67 |
| | **Total** | **151** | **100** |
| Level of Education | Post Graduate | 8 | 5 |
| | B.Sc | 29 | 19 |
| | HND | 62 | 41 |
| | NCE/Diploma | 52 | 35 |
| | **Total** | **151** | **100** |

***Source:*** Field Survey, (2018)

Table above presents the demographic characteristics of the respondents. From table 6, the gender characteristics of the respondents shows that male respondents were the majority constituting 90 (60%) in the sample as compared to their female counterparts who were 60 (40%) of the entire sample. This shows that the views of the respondents were from both genders.

The Table above also depicted the age characteristics of the respondents; the results revealed that most of the respondents were in the age-group of 26-36 years comprising 74 (49%) and were followed by those in the age-group of 15-25 years representing 58 (37%) of the sample. The minority were in the age-group of 37- 47 years and 48-90 age-group constituting 15 (10%) and 3 (2%) respectively of the sample. The results show that the respondents were in the good age bracket to make informed decisions.

Table 4 also depicted the marital status of the respondents. The table shows that 50 (33%) of the respondents are single, 100(67%) of the respondents are married. This result shows that

majority of the respondent are matured and have sound mind to provide answers to the research questions.

Table 4 further indicated that 8 (5%) of the respondents had obtained their post graduate degrees, 28(19%) obtained Bachelor of Science degree, 22(15%) were holders of Higher National Diploma, 62(47%) and 52 (35%) were holders of NCE/Diploma. Since majority of the respondents had attended the tertiary institution; the implication is that the respondents were well knowledgeable on industrial conflicts and as such made informed decisions.

**Table 7: Descriptive Statistics of Market Orientation on Competitive Advantage of Information and Communication Technology Firms in North-Central, Nigeria**

| Statement | A | SA | U | D | SD | Mean | Remarks |
|---|---|---|---|---|---|---|---|
| **Market Orientation** | | | | | | | |
| 1. Our strategy for competitive advantage is based on our understanding of customer needs | 90 (60.00%) | 35 (23.33%) | 2 (1.33%) | 13 (8.67%) | 10 (6.67%) | 3.97 | Agreed |
| 2. Our firm encourages internal sharing of market information to understand consumers/competitors behaviour. | 44 (29.33%) | 75 (50.00%) | 5 (3.33%) | 8 (5.33%) | 18 (12.00%) | 4.11 | Agreed |
| 3. Management of the firm understand how everyone in our firm can contribute to creating customer's value | 9 (6.00%) | 108 (72.00%) | 6 (4.00%) | 15 (10.00%) | 12 (8.00%) | 4.34 | Agreed |
| 4. Our business strategies are driven by our beliefs about how we can create greater value for customers | 22 (14.67%) | 83 (55.33%) | 1 (0.67%) | 2 (1.33%) | 42 (28.00%) | 3.96 | Agreed |
| 5. Our company understands how everyone in our company can contribute to creating customer's value | 90 (60.00%) | 35 (23.33%) | 2 (1.33%) | 13 (8.67%) | 10 (6.67%) | 3.97 | Agreed |
| Mean | | 4.07 | | | | | |
| Cronbach Alpha (α) | | 0.82 | | | | | |
| Valid N (listwise) | | 151 | | | | | |
| **Competitive Advantage** | | | | | | | |
| 6. Our firm has better quality compared to peers | 59 (39.07%) | 64 (42.38%) | 4 (2.65%) | 13 (8.61%) | 11 (7.28%) | 4.11 | Agreed |
| 7. We have competitive products/services compared to peers | 67 (44.37%) | 55 (36.42%) | 2 (1.32%) | 15 (9.93%) | 12 (7.95%) | 4.07 | Agreed |
| 8. We provide value for money compared to peers | 89 (58.94%) | 59 (39.07%) | 0 (0.00%) | 1 (0.66%) | 2 (1.32%) | 4.36 | Agreed |
| 9. Our firm has innovative products/services compared to peers | 78 (51.66%) | 63 (41.72%) | 0 (0.00%) | 4 (2.65%) | 6 (3.97%) | 4.31 | Agreed |
| 10. Our firm have the lowest cost compared to peers | 45 (29.80%) | 13 (8.61%) | 15 (9.93%) | 64 (42.38%) | 14 (9.27%) | 3.18 | Disagreed |
| Mean | | | | | | | |
| Cronbach Alpha (α) | | | | | | | |
| Valid N (listwise) | 151 | | | | | | |
| **Overall Mean** | **4.04** | | | | | | |

***Source:*** Field Survey, (2018)

***Decision Rule:***

***If mean <3.5 the respondents Disagree***

***If mean ≥3.5 the respondents Agree***

Table above shows the responses to the Likert-scale question and the sample mean (x) in respect of the effect of market orientation on market share of the selected Information and Communication Technology (ICT) Firms in North-Central, Nigeria. For the question on whether the companies' strategy for competitive advantage is based on our understanding of customer needs, the responses show that 35 (23.33%) of the respondents strongly agree that companies' strategy for competitive advantage is based on the understanding of customer needs, 13 (8.67%) and 10 (6.67%) were undecided, while 10 (19.23%) and 6 (11.54%) disagreed and strongly disagreed respectively that companies' strategy for competitive advantage is based on the understanding of customer needs. The associated sample mean of the responses is 3.97. This shows that the respondents agreed that companies' strategy for competitive advantage is based on the understanding of customer needs; hence the mean is ≥ 3.5.

For the question on whether the firms encourage internal sharing of market information to understand consumers/competitors behaviour, 75 (50.00%) of the respondents strongly agreed that firms encourage internal sharing of market information to understand consumers/competitors behaviour, 44 (29.33%) of the respondents agreed, 5 (3.33%) were undecided, while 8 (5.33%) and 18 (12.00%) disagreed and strongly disagreed respectively that firms encourage internal sharing of market information to understand consumers/competitors behaviour, giving a sample mean of 4.11. This shows that most of the respondents agreed that firms encourage internal sharing of market information to understand consumers/competitors behaviour; hence the mean is ≥ 3.5.

For the question on whether management of the firms understand how everyone in the firm can contribute to creating customer's value, the responses show that 108 (72.00%) of the

respondents strongly agreed that management of the firms understand how everyone in the firm can contribute to creating customer's value, 19 (6.00%) of the respondents agreed, 6 (4.00%) were undecided, while 15 (10.00%) and 12 (8.00%) disagreed and strongly disagreed respectively that management of the firms understand how everyone in the firm can contribute to creating customer's value, giving a sample mean of 4.34. This shows that the respondents agreed that management of the firms understand how everyone in the firm can contribute to creating customer's value; hence the mean is ≥ 3.5.

For the question on whether the ICT firms' business strategies were driven by their belief about how they can create greater value for customers, 83 (55.33%) of the respondents strongly agreed that the selected ICT firms' business strategies were driven by their belief about how they can create greater value for customers, 22 (14.67%) of the respondents agreed, 1 (0.67%) were undecided, while 2 (1.33%) and 42 (28.00%) disagreed and strongly disagreed respectively that the selected ICT firms' business strategies were driven by their belief about how they can create greater value for customers, giving a sample mean of 3.96. This shows that most of the respondents agreed that the selected ICT firms' business strategies were driven by their belief about how they can create greater value for customers; hence the mean is ≥ 3.5.

For the question on whether the ICT companies understood how everyone in their respective companies can contribute to creating customer's value, the responses show that, 35 (23.33%) of the respondents strongly agreed that selected ICT companies understood how everyone in their respective companies can contribute to creating customer's value, 90 (60.00%) of the respondents agreed, 2 (1.33%) were undecided, while 13 (8.67%) and 10 (6.67%) disagreed and strongly disagreed respectively that selected ICT companies understood how everyone in their respective companies can contribute to creating customer's value, giving a sample mean of 3.81. This shows that most of the respondents agreed that selected ICT companies understood how everyone in their respective companies can contribute to creating customer's

value; hence the mean is ≥ 3.5. On the average, the respondents agreed that market orientation affects the competitive advantage of the ICT firms in the North-Central, Nigeria; hence, the overall mean (4.04) is ≥ 3.5.

**Table 8: Descriptive Statistics of Technology Orientation on Product Innovation of Information and Communication Technology Firms in North - Central, Nigeria**

| Statement | A | SA | U | D | SD | Mean | Remarks |
|---|---|---|---|---|---|---|---|
| **Technological Orientation** | | | | | | | |
| 1. Our firm's policy is to adopt up-to-date technologies | 59 (39.3%) | 41 (27.3%) | 4 (2.7%) | 34 (22.7%) | 12 (8.0%) | 3.81 | Agreed |
| 2. Our firm purchases and uses technologies to position itself ahead of competitors | 34 (22.7%) | 67 (44.7%) | 5 (3.3%) | 12 (8.0%) | 32 (21.3%) | 3.84 | Agreed |
| 3. Our firm often strive to be first to try out new methods and technologies | 63 (42.0%) | 35 (23.3%) | 2 (1.3%) | 21 (14.0%) | 29 (19.3%) | 3.67 | Agreed |
| 4. Our firm frequently improves internal processes such as speed, reliability and information management | 24 (16.0%) | 72 (48.0%) | 10 (6.7%) | 18 (12.0%) | 26 (17.3%) | 3.81 | Agreed |
| 5. Our firm allocates resources for investments in latest technologies and future forecasted technological changes | 74 (49.3%) | 34 (22.7%) | 9 (6.0%) | 11 (7.3%) | 22 (14.7%) | 3.68 | Agreed |
| Mean | 3.76 | | | | | | |
| Cronbach Alpha | 0.78 | | | | | | |
| Valid N (listwise) | 151 | | | | | | |
| **Product Innovations** | | | | | | | |
| 6. Our company introduced and implemented new product during the last three years that were perceived to be new to the industry in which our company operates | 55 (36.42%) | 87 (57.62%) | 3 (1.99%) | 5 (3.31%) | 1 (0.66%) | 4.47 | Agreed |
| 7. New ideas and methods are always introduced into our products | 67 (44.37%) | 55 (36.42%) | 2 (1.32%) | 15 (9.93%) | 12 (7.95%) | 4.07 | Agreed |
| 8. There is enhancement of employees' skills for better performance | 75 (49.67%) | 73 (48.34%) | 0 (0.00%) | 1 (0.66%) | 2 (1.32%) | 4.45 | Agreed |
| 9. There is advancement of technology and equipment | 56 (37.09%) | 87 (57.62%) | 0 (0.00%) | 4 (2.65%) | 2 (1.32%) | 4.47 | Agreed |
| 10. Our company continuously improves on its products | 45 (29.80%) | 64 (42.38%) | 15 (9.93%) | 15 (9.93%) | 14 (9.27%) | 3.89 | Agreed |
| Mean | 4.13 | | | | | | |
| Cronbach Alpha (α) | 0.88 | | | | | | |
| Valid N (listwise) | 151 | | | | | | |
| **Overall Mean** | **3.95** | | | | | | |

***Source:*** Field Survey, (2018)

***Decision Rule:***
***If mean <3.5 the respondents Disagree***
***If mean ≥3.5 the respondents Agree***

Table above shows the responses to the Likert-scale question and the sample mean (x) in respect of the effect of technology orientation on product innovation of the selected ICT firms in North-Central, Nigeria. For the question on whether the selected ICT firms' policy was to adopt up-to-date technologies, the responses show that 41 (27.3%) of the respondents strongly agree that the selected ICT firms' policy was to adopt up-to-date technologies, 59 (39.3%) and 4 (2.7%) were undecided, while 34 (22.7%) and 12 (8.0%) disagreed and strongly disagreed respectively that the selected ICT firms' policy was to adopt up-to-date technologies. The associated sample mean of the responses is 3.81. This shows that the respondents agreed that the selected ICT firms' policy was to adopt up-to-date technologies; hence the mean is $\geq 3.5$.

For the question on whether the selected ICT firms purchase and use technologies to position itself ahead of competitors, 67 (44.7%) of the respondents strongly agreed that selected ICT firms purchase and use technologies to position itself ahead of competitors, 34 (22.7%) of the respondents agreed, 5 (3.3%) were undecided, while 12 (8.0%) and 32 (21.3%) disagreed and strongly disagreed respectively that selected ICT firms purchase and use technologies to position itself ahead of competitors, giving a sample mean of 3.84. This shows that most of the respondents agreed that ICT firms purchase and use technologies to position itself ahead of competitors; hence the mean is $\geq 3.5$.

For the question on whether ICT firms often strive to be first to try out new methods and technologies, the responses show that 35 (23.3%) of the respondents strongly agreed that ICT firms often strive to be first to try out new methods and technologies, 63 (42.0%) of the respondents agreed, 2 (1.3%) were undecided, while 21 (14.0%) and 29 (19.3%) disagreed and strongly disagreed respectively that ICT firms often strive to be first to try out new methods and technologies, giving a sample mean of 3.67. This shows that the respondents

agreed that ICT firms often strive to be first to try out new methods and technologies; hence the mean is ≥ 3.5.

For the question on whether the Information & Communication Technology firms frequently improve internal processes such as speed, reliability and information management, 72 (48.0%) of the respondents strongly agreed that selected ICT firms frequently improve internal processes such as speed, reliability and information management, 24 (16.0%) of the respondents agreed, 10 (6.7%) were undecided, while 18 (12.0%) and 26 (17.3%) disagreed and strongly disagreed respectively that selected ICT firm frequently improve internal processes such as speed, reliability and information management, giving a sample mean of 3.81. This shows that most of the respondents agreed that selected ICT firm frequently improve internal processes such as speed, reliability and information management; hence, the mean is ≥ 3.5.

For the question on whether Information and Communication Technology firms allocate resources for investments in latest technologies and future forecasted technological changes, the responses show that, 34 (22.7%) of the respondents strongly agreed that Information and Communication Technology firms allocate resources for investments in latest technologies and future forecasted technological changes, 74 (49.3%) of the respondents agreed, 9 (6.0%) were undecided, while 11 (7.3%) and 22 (14.7%) disagreed and strongly disagreed respectively that Information & Communication Technology firms allocate resources for investments in latest technologies and future forecasted technological changes, giving a sample mean of 3.68. This shows that most of the respondents agreed that Information and Communication Technology firms allocate resources for investments in latest technologies and future forecasted technological changes; hence the mean is ≥ 3.5.

On the average, the respondents agreed that technology orientation affects product innovation of the selected the Information and Communication Technology firms in North-Central, Nigeria; hence, the overall mean (3.95) is ≥ 3.5.

**Table 9: Descriptive Statistics of Resource Orientation on Competitive Advantage Information and Communication Technology Firms in North-Central, Nigeria**

| Statement | A | SA | U | D | SD | Mean | Remarks |
|---|---|---|---|---|---|---|---|
| **Resource Orientation** | | | | | | | |
| 11. We constantly strive to ensure that our resources cannot be easily identified by competitors | 66 (44.0%) | 34 (22.7%) | 8 (5.3%) | 30 (20.0%) | 12 (8.0%) | 3.71 | Agreed |
| 12. We work to ensure our resources act as triggers for collaborative problem solving with stakeholders | 34 (22.7%) | 77 (51.3%) | 5 (3.3%) | 2 (1.3%) | 32 (21.3%) | 3.97 | Agreed |
| 13. Our resources are the principle drivers used to develop strategies that enable us to achieve efficiency or effectiveness | 78 (52.0%) | 20 (13.3%) | 3 (2.0%) | 20 (13.3%) | 29 (19.3%) | 3.55 | Agreed |
| 14. We share key resources across departments to ensure they lack a clearly identified owner | 24 (16.0%) | 72 (48.0%) | 10 (6.7%) | 18 (12.0%) | 26 (17.3%) | 3.81 | Agreed |
| 15. We try to make certain that our competitors find it difficult to determine the resources that may lead to our success | 14 (9.3%) | 90 (60.0%) | 12 (8.0%) | 12 (8.0%) | 22 (14.7%) | 3.99 | Agreed |
| Mean | | 3.81 | | | | | |
| Cronbach Alpha | | 0.73 | | | | | |
| Valid N (listwise) | | 151 | | | | | |
| **Competitive Advantage** | | | | | | | |
| 11. Our firm has better quality compared to peers | 59 (39.07%) | 64 (42.38%) | 4 (2.65%) | 13 (8.61%) | 11 (7.28%) | 4.11 | Agreed |
| 12. We have competitive products/services compared to peers | 67 (44.37%) | 55 (36.42%) | 2 (1.32%) | 15 (9.93%) | 12 (7.95%) | 4.07 | Agreed |
| 13. We provide value for money compared to peers | 89 (58.94%) | 59 (39.07%) | 0 (0.00%) | 1 (0.66%) | 2 (1.32%) | 4.36 | Agreed |
| 14. Our firm has innovative products/services compared to peers | 78 (51.66%) | 63 (41.72%) | 0 (0.00%) | 4 (2.65%) | 6 (3.97%) | 4.31 | Agreed |
| 15. Our firm have the lowest cost compared to peers | 45 (29.80%) | 13 (8.61%) | 15 (9.93%) | 64 (42.38%) | 14 (9.27%) | 3.18 | Disagreed |
| Mean | 4.00 | | | | | | |
| Cronbach Alpha (α) | 0.77 | | | | | | |
| Valid N (listwise) | 151 | | | | | | |
| **Overall Mean Combined** | **3.97** | | | | | | |

***Source:*** Field Survey, (2018)

***Decision Rule:***

***If mean <3.5 the respondents Disagree***

***If mean ≥3.5 the respondents Agree***

Table above shows the responses to the Likert-scale question and the sample mean (x). For the question on whether Information and Communication Technology firms constantly strive to ensure that their resources cannot be easily identified by their competitors, the responses show that 34 (22.7%) of the respondents strongly agree that Information & Communication Technology firms constantly strive to ensure that their resources cannot be easily identified by their competitors, 66 (44.0%) agreed, 8 (5.3%) were undecided, while 30 (20.0%) and 12 (8.0%) disagreed and strongly disagreed respectively that Information and Communication Technology firms constantly strive to ensure that their resources cannot be easily identified their competitors. The associated sample mean of the responses is 3.71. This shows that the respondents agreed that ICT firms constantly strive to ensure that their resources cannot be easily identified by their competitors; hence the mean is ≥ 3.5.

For the question on whether ICT firms work to ensure that their resources act as triggers for collaborative problem solving with stakeholders, 77 (51.3%) of the respondents strongly agreed that ICT firms work to ensure that their resources act as triggers for collaborative problem solving with stakeholders, 34(22.7%) of the respondents agreed, 5 (3.3%) were undecided, while 2(1.3%) and 32(21.3%) disagreed and strongly disagreed respectively that ICT firms work to ensure that their resources act as triggers for collaborative problem solving with stakeholders, giving a sample mean of 3.97. This shows that most of the respondents agreed that ICT firms work to ensure that their resources act as triggers for collaborative problem solving with stakeholders king; hence the mean is ≥ 3.5.

For the question on whether ICT firms' resources are the principle drivers used to develop strategies that enable them to achieve efficiency or effectiveness, the responses show that 20

(13.3%) of the respondents strongly agreed that ICT firms' resources are the principle drivers used to develop strategies that enable them to achieve efficiency or effectiveness, 78 (52.0%) of the respondents agreed, 3 (2.0%) were undecided, while 20 (13.3%) and 29 (19.3%) disagreed and strongly disagreed respectively that ICT firms' resources are the principle drivers used to develop strategies that enable them to achieve efficiency or effectiveness, giving a sample mean of 3.55. This shows that the respondents agreed that ICT firms' resources are the principle drivers used to develop strategies that enable them to achieve efficiency or effectiveness; hence the mean is $\geq 3.5$.

For the question on whether the selected ICT firms share key resources across departments to ensure they lack a clearly identified owner, 72 (48.0%) of the respondents strongly agreed that selected ICT firms share key resources across departments to ensure they lack a clearly identified owner, 24(16.0%) of the respondents agreed, 10 (6.7%) were undecided, while 18 (12.0%) and 26(17.3%) disagreed and strongly disagreed respectively that selected ICT firms share key resources across departments to ensure they lack a clearly identified owner, giving a sample mean of 3.81. This shows that most of the respondents agreed that selected ICT firms share key resources across departments to ensure they lack a clearly identified owner; hence the mean is $\geq 3.5$.

For the question on whether the selected ICT firms try to make certain that their competitors find it difficult to determine the resources that may lead to their success, the responses show that, 90 (60.0%) of the respondents strongly agreed that the selected ICT firms try to make certain that their competitors find it difficult to determine the resources that may lead to their success, 14 (9.3%) of the respondents agreed, 12 (8.0%) were undecided, while 12 (8.0%) and 22 (14.7%) disagreed and strongly disagreed respectively that the selected ICT firms try to make certain that their competitors find it difficult to determine the resources that may lead to their success, giving a sample mean of 3.99. This shows that most of the respondents

agreed that the selected ICT firms try to make certain that their competitors find it difficult to determine the resources that may lead to their success; hence the mean is ≥ 3.5.

On the average, the respondents agreed that resource orientation affect competitive advantage of Information and Communication Technology Firms in North-Central, Nigeria; hence, the overall mean (3.97) is ≥ 3.5.

**Table 10: Descriptive Statistics of Learning Orientation on Service Quality of Information and Communication Technology Firms in North-Central, Nigeria**

| Statement | A | SA | U | D | SD | Mean | Remarks |
|---|---|---|---|---|---|---|---|
| **Learning Orientation** | | | | | | | |
| 1. The basic values of this organization include learning as a key to improvement | 90 (59.60%) | 57 (37.75%) | 0 (0.00%) | 3 (1.99%) | 1 (0.66%) | 3.62 | Agreed |
| 2. Learning in my organization is seen as a key commodity necessary to guarantee organizational survival | 54 (35.76%) | 93 (61.59%) | 0 (0.00%) | 1 (0.66%) | 3 (1.99%) | 4.09 | Agreed |
| 3. All employees are committed to the goals of this organization | 90 (59.60%) | 56 (37.09%) | 0 (0.00%) | 1 (0.66%) | 4 (2.65%) | 3.79 | Agreed |
| 4. We are not afraid to reflect critically on the shared assumptions we have made about our customers | 89 (58.94%) | 59 (39.07%) | 0 (0.00%) | 1 (0.66%) | 2 (1.32%) | 3.81 | Agreed |
| 5. Managers basically agree that our organization's ability to learn is the key to our competitive advantage | 82 (54.30%) | 64 (42.38%) | 1 (0.66%) | 3 (1.99%) | 1 (0.66%) | 3.68 | Agreed |
| Mean | | 3.81 | | | | | |
| Cronbach Alpha | | 0.73 | | | | | |
| Valid N (listwise) | | 151 | | | | | |
| **Service Quality** | | | | | | | |
| 6. We provide reliable services at the time it promises and show sincere interest in solving customers problem | 59 (39.07%) | 64 (42.38%) | 4 (2.65%) | 13 (8.61%) | 11 (7.28%) | 4.34 | Agreed |
| 7. The responsiveness shown by our company's customer service through their help line gives prompt service and are always willing to respond to customer requests, even if busy | 67 (44.37%) | 55 (36.42%) | 2 (1.32%) | 15 (9.93%) | 12 (7.95%) | 4.57 | Agreed |
| 8. Our firm provides value for money paid for products or services | 89 (58.94%) | 59 (39.07%) | 0 (0.00%) | 1 (0.66%) | 2 (1.32%) | 4.31 | Agreed |
| 9. The company has appropriate ICT facilities for providing excellent services | 78 (51.66%) | 63 (41.72%) | 0 (0.00%) | 4 (2.65%) | 6 (3.97%) | 4.36 | Agreed |
| 10. Employees are knowledgeable about their work | 45 (29.80%) | 13 (8.61%) | 15 (9.93%) | 64 (42.38%) | 14 (9.27%) | 4.37 | Agreed |
| Mean | 4.39 | | | | | | |
| Cronbach Alpha (α) | 0.76 | | | | | | |
| Valid N (listwise) | 151 | | | | | | |
| **Overall Mean** | **4.10** | | | | | | |

***Source:*** Field Survey, (2018)

***Decision Rule:***

***If mean <3.5 the respondents Disagree***

***If mean ≥3.5 the respondents Agree***

Table above shows the responses to the Likert-scale question and the sample mean (x). For the question on whether the basic values of Information and Communication Technology firms include learning as a key to improvement, the responses show that 23 (15.3%) of the respondents strongly agree that the basic values of Information and Communication Technology firms include learning as a key to improvement, 59 (39.3%) agreed, 10 (6.7%) were undecided, while 26 (17.3%) and 12 (8.0%) disagreed and strongly disagreed respectively that the basic values of the selected ICT firms include learning as a key to improvement. The associated sample mean of the responses is 3.62. This shows that the respondents agreed that the basic values of the selected ICT firms include learning as a key to improvement; hence, the mean is $\geq 3.5$.

For the question on whether learning in ICT firms is seen as a key commodity necessary to guarantee organizational survival, 81 (54.0%) of the respondents strongly agreed that learning in ICT firms is seen as a key commodity necessary to guarantee organizational survival, 34 (22.7%) of the respondents agreed, 5 (3.3%) were undecided, while 7 (4.7%) and 23 (15.3%) disagreed and strongly disagreed respectively that learning in ICT firms is seen as a key commodity necessary to guarantee organizational survival, giving a sample mean of 4.09. This shows that most of the respondents agreed that learning in ICT firms is seen as a key commodity necessary to guarantee organizational survival; hence the mean is $\geq 3.5$.

For the question on whether all the employees of the selected ICT firms are committed to the goals of this organization, the responses show that, 45 (30.0%) of the respondents strongly agreed that all the employees of the selected ICT firms are committed to the goals of this organization, 57 (38.0%) of the respondents agreed, 2 (1.3%) were undecided, while 21 (14.0%) and 25 (16.7%) disagreed and strongly disagreed respectively that all the employees of the selected ICT firms are committed to the goals of this organization, giving a sample mean of 3.79. This shows that the respondents agreed that all the employees of the selected ICT firms are committed to the goals of this organization; hence the mean is $\geq 3.5$.

For the question on whether the selected ICT firms are not afraid to reflect critically on the shared assumptions they have made about their customers, 72 (48.0%) of the respondents strongly agreed that the selected ICT firms are not afraid to reflect critically on the shared assumptions they have made about their customers, 24 (16.0%) of the respondents agreed, 10 (6.7%) were undecided, while 18 (12.0%) and 26 (17.3%) disagreed and strongly disagreed respectively that the selected ICT firms are not afraid to reflect critically on the shared assumptions they have made about their customers, giving a sample mean of 3.81. This shows that most of the respondents agreed that the selected ICT firms are not afraid to reflect critically on the shared assumptions they have made about their customers; hence, the mean is $\geq 3.5$.

For the question on whether the managers in the selected ICT firms basically agree that their organization's ability to learn is the key to competitive advantage, the responses show that, 34 (22.7%) of the respondents strongly agreed that managers in the selected ICT firms basically agree that their organization's ability to learn is the key to competitive advantage, 74 (49.3%) of the respondents agreed, 9 (6.0%) were undecided, while 11 (7.3%) and 22 (14.7%) disagreed and strongly disagreed respectively that managers in the selected ICT firms basically agree that their organization's ability to learn is the key to competitive advantage, giving a sample mean of 3.68. This shows that most of the respondents agreed that managers in the selected ICT firms basically agree that their organization's ability to learn is the key to competitive advantage; hence the mean is $\geq 3.5$.

On the average, the respondents agreed that learning orientation affects service quality of ICT firms in North-Central, Nigeria; hence, the overall mean (4.10) is $\geq 3.5$

**Table 11: Descriptive Statistics of Entrepreneurial Orientation on Competitive Advantage of Information and Communication Technology Firms in North-Central, Nigeria**

| Statement | A | SA | U | D | SD | Mean | Remarks |
|---|---|---|---|---|---|---|---|
| **Entrepreneurial Orientation** | | | | | | | |
| 1. My firm is very aggressive and intensely competitive rather than making no special effort to take business from the competition | 75 (50.0%) | 37 (24.7%) | 3 (2.0%) | 15 (10.0%) | 20 (13.3%) | 3.82 | Agreed |
| 2. My firm prefers to design its own unique new processes and methods of production rather than adapting methods and techniques that others have developed and proven | 66 (44.0%) | 46 (30.7%) | 4 (2.7%) | 24 (16.0%) | 10 (6.7%) | 3.93 | Agreed |
| 3. In dealing with its competitors, my firm typically responds to actions that competitors initiate, typically initiates actions that competitors respond to. | 88 (58.7%) | 39 (26.0%) | 5 (3.3%) | 6 (4.0%) | 12 (8.0%) | 3.96 | Agreed |
| 4. The top managers of my firm have a strong proclivity for low risk projects (with normal and certain rates of return) rather than high risk projects (with chances of very high return) | 73 (48.7%) | 54 (36.0%) | 2 (1.3%) | 4 (2.7%) | 17 (11.3%) | 4.07 | Agreed |
| 5. When confronted with decision-making situations involving uncertainty, my firm typically adopts a cautious, "wait-and-see" posture in order to minimize the probability of making costly mistakes/decisions (as compared with a bold, aggressive posture to maximize the probability of exploiting potential opportunities) | 84 (56.0%) | 34 (22.7%) | 5 (3.3%) | 18 (12.0%) | 9 (6.0%) | 3.89 | Agreed |
| Mean | 3.93 | | | | | | |
| Cronbach Alpha | 0.74 | | | | | | |
| **Competitive Advantage** | | | | | | | |
| 6. Our firm has better quality compared to peers | 59 (39.07%) | 64 (42.38%) | 4 (2.65%) | 13 (8.61%) | 11 (7.28%) | 4.11 | Agreed |
| 7. We have competitive products/services compared to peers | 67 (44.37%) | 55 (36.42%) | 2 (1.32%) | 15 (9.93%) | 12 (7.95%) | 4.07 | Agreed |
| 8. We provide value for money compared to peers | 89 (58.94%) | 59 (39.07%) | 0 (0.00%) | 1 (0.66%) | 2 (1.32%) | 4.36 | Agreed |
| 9. Our firm has innovative products/services compared to peers | 78 (51.66%) | 63 (41.72%) | 0 (0.00%) | 4 (2.65%) | 6 (3.97%) | 4.31 | Agreed |
| 10. Our firm have the lowest cost compared to peers | 45 (29.80%) | 13 (8.61%) | 15 (9.93%) | 64 (42.38%) | 14 (9.27%) | 3.18 | Disagreed |
| Mean | 4.31 | | | | | | |
| Cronbach Alpha (α) | 0.77 | | | | | | |
| Valid N (listwise) | 151 | | | | | | |
| **Overall Mean** | **4.12** | | | | | | |

***Source:*** Field Survey, (2018)

***Decision Rule:***

***If mean <3.5 the respondents Disagree***

***If mean ≥3.5 the respondents Agree***

Table above shows the responses to the Likert-scale question and the sample mean (x). For the question on whether the selected ICT firms are aggressive and intensely competitive rather than making no special effort to take business from their competitors, the responses show that 37 (24.7%) of the respondents strongly agree that the selected ICT firms are aggressive and intensely competitive rather than making no special effort to take business from their competitors, 75 (50.0%) agreed, 3(2.0%) were undecided, while 15(10.0%) and 20 (13.3%) disagreed and strongly disagreed respectively that the selected ICT firms are aggressive and intensely competitive rather than making no special effort to take business from their competitors. The associated sample mean of the responses is 3.82. This shows that the selected ICT firms are aggressive and intensely competitive rather than making no special effort to take business from their competitors; hence, the mean is ≥ 3.5.

For the question on whether the selected ICT firms prefer to design their own unique processes and methods of production rather than adapting methods and techniques that others have developed and proven, 39 (26.0%) of the respondents strongly agreed that the selected ICT firms prefer to design their own unique processes and methods of production rather than adapting methods and techniques that others have developed and proven, 88(58.7%) of the respondents agreed, 5(3.3%) were undecided, while 6 (4.0%) and 12 (8.0%) disagreed and strongly disagreed respectively that the selected ICT firms prefer to design their own unique processes and methods of production rather than adapting methods and techniques that others have developed and proven, giving a sample mean of 3.96. This shows that most of the respondents agreed that the selected ICT firms prefer to design their own unique processes and methods of production rather than adapting methods and techniques that others have developed and proven; hence the mean is ≥ 3.5.

For the question on whether in dealing with their competitors, the selected ICT firms typically responds to actions that competitors initiate, the responses show that 45 (30.0%) of the respondents strongly agreed that the selected ICT firms typically responds to actions that competitors initiate, 57 (38.0%) of the respondents agreed, 2 (1.3%) were undecided, while 21 (14.0%) and 25 (16.7%) disagreed and strongly disagreed respectively that the selected ICT firms typically responds to actions that competitors initiate, giving a sample mean of 3.79. This shows that the respondents agreed that the selected ICT firms typically respond to actions that competitors initiate; hence the mean is $\geq 3.5$.

For the question on whether the top managers of the selected ICT firms have a strong proclivity for low risk projects rather than high risk projects (with chances of very high return, 54 (36.0%) of the respondents strongly agreed that the top managers of the selected ICT firms have a strong proclivity for low risk projects rather than high risk projects (with chances of very high return, 73(48.7%) of the respondents agreed, 2(1.3%) were undecided, while 4 (2.7%) and 17 (11.3%) disagreed and strongly disagreed respectively that the top managers of the selected ICT firms have a strong proclivity for low risk projects rather than high risk projects (with chances of very high return, giving a sample mean of 4.07. This shows that most of the respondents agreed that the top managers of the selected ICT firms have a strong proclivity for low risk projects rather than high risk projects (with chances of very high return; hence, the mean is $\geq 3.5$.

For the question on whether when confronted with decision-making situations involving uncertainty, the ICT firms typically adopts a cautious, "wait-and-see" posture in order to minimize the probability of making costly mistakes/decisions (as compared with a bold, aggressive posture to maximize the probability of exploiting potential opportunities), the responses show that, 34 (22.7%) of the respondents strongly agreed that ICT firms typically adopts a cautious, "wait-and-see" posture in order to minimize the probability of making costly mistakes/decisions (as compared with a bold, aggressive posture to maximize the

probability of exploiting potential opportunities), 84 (56.0%) of the respondents agreed, 5 (3.3%) were undecided, while 18 (12.0%) and 9(6.0%) disagreed and strongly disagreed respectively the ICT firms typically adopts a cautious, "wait-and-see" posture in order to minimize the probability of making costly mistakes/decisions (as compared with a bold, aggressive posture to maximize the probability of exploiting potential opportunities), giving a sample mean of 3.89. This shows that most of the respondents agreed that the selected ICT firms typically adopts a cautious, "wait-and-see" posture in order to minimize the probability of making costly mistakes/decisions (as compared with a bold, aggressive posture to maximize the probability of exploiting potential opportunities); hence the mean is ≥ 3.5.

On the average, the respondents agreed that entrepreneurial orientation affectscompetitive advantage of information & communication technology firms in North - Central, Nigeria; hence, the overall mean (4.12) is ≥ 3.5.

## 4.3 Test of Hypotheses

### 4.3.1 Test of Hypothesis One

***$H_1$:*** *There is no significant relationship between market orientation and competitive advantage of the Information and Communication Technology (ICT) firms in North-Central, Nigeria.*

**Table 12: Correlation Analysis of the Relationship between Market Orientation and Market Share of Information and Communication Technology Firms in North-Central, Nigeria**

| | | | Marketing Orientation | Market Share |
|---|---|---|---|---|
| Spearman's rho | Marketing Orientation | Correlation Coefficient | 1.000 | .648** |
| | | Sig. (2-tailed) | . | .000 |
| | | N | 151 | 151 |
| | Competitive Advantage | Correlation Coefficient | .648** | 1.000 |
| | | Sig. (2-tailed) | .000 | . |
| | | N | 151 | 151 |

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

***Source:*** *SPSS Output (2018)*

**Decision:** Table 12 present the result of the Spearman rank order correlation statistics. The correlation coefficient (0.648) indicated a positive relationship between marketing orientation and competitive advantage of the selected ICT firms in North Central Nigeria. However, the relationship between marketing orientation and competitive advantage is strong, since the p-value (0.00) is less than 0.05 ($r_s=0.648, p<0.00$). The significance of the relationship is measured by the Z value of 7.90 and a critical value of ±1.96. Since the computed Z value is greater than the critical Z value, the null hypothesis is rejected. Therefore, there is significant relationship between market orientation and competitive advantageof the selected Information & Communication Technology (ICT) firms in North-Central, Nigeria.

### 4.3.2 Test of Hypothesis Two

***$H_2$:*** *Technology orientation does not significantly influence product innovation of the Information and Communication Technology (ICT) firms in North-Central, Nigeria.*

**Table 13: Correlation Analysis of the Relationship between Technology Orientation and Product Innovation of Information and Communication Technology Firms in North-Central, Nigeria**

| | | | Technology Orientation | Product Innovation |
|---|---|---|---|---|
| Spearman's rho | Technology Orientation | Correlation Coefficient | 1.000 | .651** |
| | | Sig. (2-tailed) | . | .000 |
| | | N | 151 | 151 |
| | Product Innovation | Correlation Coefficient | .651** | 1.000 |
| | | Sig. (2-tailed) | .000 | . |
| | | N | 151 | 151 |

**. Correlation is significant at the 0.01 level (2-tailed)
***Source:*** *SPSS Output (2018)*

**Decision:** Table above present the result of the Spearman rank correlation statistics. The correlation coefficient (0.651) indicated a positive relationship between technology orientation and product innovation of the selected ICT firms in North Central Nigeria. However, the relationship between technology orientation and product innovation is strong,

since the p-value (0.00) is less than 0.01 ($r_s=0.651$, $p<0.00$). The significance of the relationship is measured by the Z value of 7.90 and a critical value of ±1.96. Since the computed Z value is greater than the critical Z value, the null hypothesis is rejected. Therefore, technology orientation significantly influences product innovation of the selected Information & Communication Technology (ICT) firms in North-Central, Nigeria.

### 4.3.3 Test of Hypothesis Three

***$H_2$:*** *There is no significant relationship between resource orientation and competitive advantage of the Information and Communication Technology (ICT) firms in North-Central, Nigeria.*

**Table 14: Correlation Analysis of the Relationship between Resource Orientation and Competitive Advantage of Information and Communication Technology Firms in North-Central, Nigeria**

| | | | Resources Orientation | Competitive Advantage |
|---|---|---|---|---|
| Spearman's rho | Resources Orientation | Correlation Coefficient | 1.000 | .724** |
| | | Sig. (2-tailed) | . | .000 |
| | | N | 151 | 151 |
| | Competitive Advantage | Correlation Coefficient | .724** | 1.000 |
| | | Sig. (2-tailed) | .000 | . |
| | | N | 151 | 151 |

**. Correlation is significant at the 0.01 level (2-tailed)
***Source:*** *SPSS Output (2018)*

**Decision:** Table above present the result of the Spearman rank correlation statistics. The correlation coefficient (0.724) indicated a positive relationship between resources orientation and competitive advantage of the selected ICT firms in North Central Nigeria. However, the relationship between resources orientation and competitive advantage is strong, since the p-value (0.00) is less than 0.01 ($r_s=0.724$, $p<0.00$). The significance of the relationship is measured by the Z value of 8.83 and a critical value of ±1.96. Since the computed Z value is greater than the critical Z value, the null hypothesis is rejected. Therefore, resources

orientation significantly influences competitive advantage of the Information and Communication Technology (ICT) firms in North-Central, Nigeria.

### 4.3.4 Test of Hypothesis Four

***$H_4$:*** *There is no significant relationship between learning orientation and service quality of the Information and Communication Technology (ICT) firms in North-Central, Nigeria.*

**Table 15: Correlation Analysis of the Relationship between Learning Orientation and Service Quality of Information & Communication Technology Firms in North-Central, Nigeria**

| | | | Learning Orientation | Service Quality |
|---|---|---|---|---|
| Spearman's rho | Learning Orientation | Correlation Coefficient | 1.000 | .803** |
| | | Sig. (2-tailed) | . | .000 |
| | | N | 151 | 151 |
| | Service Quality | Correlation Coefficient | .803** | 1.000 |
| | | Sig. (2-tailed) | .000 | . |
| | | N | 151 | 151 |

**. Correlation is significant at the 0.01 level (2-tailed)
***Source:*** *SPSS Output (2018)*

**Decision:** Table above present the result of the Spearman rank correlation statistics. The correlation coefficient (0.803) indicated a positive relationship between learning orientation and service quality of the selected ICT firms in North Central Nigeria. However, the relationship between learning orientation and service quality is strong, since the p-value (0.00) is less than 0.01 ($r_s=0.803$, $p<0.00$). The significance of the relationship is measured by the Z value of 8.83 and a critical value of ±1.96. Since the computed Z value is greater than the critical Z value, the null hypothesis is rejected. Therefore, there is significant relationship between learning orientation and service quality of the selected Information & Communication Technology (ICT) firms in North-Central, Nigeria.

### 4.3.5 Test of Hypothesis Five

***$H_5$:*** *There is no significant relationship between entrepreneurial orientation and competitive advantage of the Information and Communication Technology (ICT) firms in North –Central, Nigeria.*

**Table 16: Correlation Analysis of the Relationship between Entrepreneurial Orientation and Competitive Advantage of Information and Communication Technology (ICT) firms in North-Central, Nigeria**

| | | | Entrepreneurial Orientation | Competitive Advantage |
|---|---|---|---|---|
| Spearman's rho | Entrepreneurial Orientation | Correlation Coefficient | 1.000 | .848** |
| | | Sig. (2-tailed) | . | .000 |
| | | N | 151 | 151 |
| | Competitive Advantage | Correlation Coefficient | .848** | 1.000 |
| | | Sig. (2-tailed) | .000 | . |
| | | N | 151 | 151 |

**. Correlation is significant at the 0.01 level (2-tailed)
***Source:*** *SPSS Output (2018)*

**Decision:** Table above present the result of the Spearman rank correlation statistics in respect to hypothesis five. The correlation coefficient (0.848) indicated a positive relationship between entrepreneurial orientation and competitive advantage of the selected ICT firms in North Central Nigeria. However, the relationship between entrepreneurial orientation and competitive advantage is strong, since the p-value (0.00) is less than 0.01 ($r_s$*=0.0.848, p<0.00*). The significance of the relationship is measured by the Z value of 10.35 and a critical value of ±1.96. Since the computed Z value is greater than the critical Z value, the null hypothesis is rejected. Therefore, there is significant relationship between entrepreneurial orientation and competitive advantage of the Information and Communication Technology (ICT) firms in North Central Nigeria.

# CHAPTER FIVE

# DISCUSSION OF FINDINGS

## 5.0 Introduction

This chapter discusses the findings of the study in line with the objectives of the study.

## 5.1 Discussion of Findings

From the result of the data analysis, the following findings as regard the subject; effect of strategic orientation and entrepreneurial development on the performance of Information and Communication Technology firms in North - Central, Nigeria, has been deduced;

### 5.1.1 Effect of Market Orientation on Competitive Advantage of Information and Communication Technology (ICT) Firms in North-Central, Nigeria

The study revealed that there is positive and significant relationship between market orientation and competitive advantage of the selected Information & Communication Technology (ICT) firms in North-Central, Nigeria. The finding is consistent with the documentation of Grawe, Chen and Daugherty (2009), Laforet (2009), Lee (2016), Nasir, Al Mamun and Breen (2017), Laukkanen, Nagy, Hirvonen, Reijonen, and Pasanen (2013), Hult, Hurley, and Knight (2004) that marketing orientation positively impacts market share of companies. This implies that marketing orientation creates sustained competitive advantage by providing customers with products and services with superior value in comparison with its competitors. These customers' needs most likely lead to incremental improvements at existing products or services, and less likely will trigger latent customer needs that often lead to new markets and radical innovations. Overreliance on competitors will also less likely lead to new markets and radical innovations.

This further implies that firms that that engage in marketing orientation by offering better prices, delivery times and customer service than rivals offer, tend to have an increased market share.

### 5.1.2 Effect of Technology Orientation and Product Innovation of Information and Communication Technology (ICT) Firms in North-Central, Nigeria

The study revealed that technology orientation is positively and significantly influence product innovation of the Information and Communication Technology (ICT) firms in North-Central, Nigeria. The study findings is supported by the documentation of Zhou, Yim, and Tse (2005), Mu and Di Benedetto (2011), Lee (2016), Abid (2017), Obeidat (2016), Laforet (2009), Spanjol, Mühlmeier and Tomczak (2012), Yang, Wang, Zhu and Wu (2012), Hult, Hurley, and Knight (2004) that technology orientation accounts for introduction of new products/services as well as causing incremental changes within the new product success. This implies that technologically oriented firms devote their resources to acquiring new and advanced technologies and developing new processes, products and services, although, the rate of technological changes within an industry might affect their technological adoption and/or development. Firms that have a high technology orientation flaunts sophisticated products/services and innovative processes. Technologically oriented firms that combine customer-value innovation with technological innovation have an increased chance of enjoying sustainable profit and performance.

### 5.1.3 Effect of Resources Orientation on Competitive Advantage of Information and Communication Technology (ICT) Firms in North-Central, Nigeria

The study further revealed that resources orientation significantly and positively influences competitive advantage of the Information and Communication Technology (ICT) firms in North-Central, Nigeria. The finding corroborates with the documentation of Yeung, Selen, Sum and Huo (2006), Hult, Hurley, and Knight (2004) that resources oriented firms positively impacts competitive advantage as postulates by the resources based theory. This implies that resources orientation creates sustained competitive advantage by developing and deploying unique and costly-to-imitate (bundles of) resources for the purpose of exploiting environmental opportunities and neutralizing threats resulting in a unique (superior valuable)

resource base that is immobile and heterogeneous. This offers companies to access unfolding market opportunities by fulfilling a latent demand of potential customers.

### 5.1.4 Effect of Learning Orientation on Service Quality of Information and Communication Technology (ICT) Firms in North-Central, Nigeria

The study also revealed that there is positive and significant relationship between learning orientation and service quality of the selected Information and Communication Technology (ICT) firms in North-Central, Nigeria. The finding is consistent with the documentation of Grawe, Chen and Daugherty (2009), Hult, Hurley and Knight (2004) that learning orientation positively affects the service quality of companies. This implies that learning orientation positively affects the quality improvements reflected in the firms' products/services. Learning orientation allows organizations to learn from errors and improve their internal organization and leads to improvements of existing products, services and most likely leads to innovations that are more radical and improved quality service. However, the higher the commitment to learning, open-mindedness and shared vision, the more able the organization is to implement generative learning to improve the quality of service rendered.

### 5.1.5 Effect of Entrepreneurial Orientation on Competitive Advantage of Information and Communication Technology (ICT) Firms in North - Central Nigeria

Lastly, the result of the analysis revealed that entrepreneurial orientation positively and significantly affects competitive advantage of the Information and Communication Technology (ICT) firms in North Central Nigeria.The finding is consistent with the documentation of Grawe, Chen and Daugherty (2009), Laforet (2009), Lee (2016), Nasir, Al Mamun and Breen (2017), Laukkanen, Nagy, Hirvonen, Reijonen, and Pasanen (2013), Hult, Hurley, and Knight (2004) positively affects competitive advantage of companies. This implies that for a company to survive in a competitive market, firms must be entrepreneurial orientated. Entrepreneurial organizations are better able to match their internal organization by changing and shaping the environment and allocate resources to exploit uncertain business

opportunities. The dimensions innovativeness, risk taking, proactiveness, competitive aggressiveness and autonomy induce organizations to make proactive investments in resources that potentially lead to radical or discontinuous innovations with greater revenue potential than incremental innovations. However, empirical evidence does suggest that most entrepreneurs avoid high-risk situations as well as low risk situation. They actually settle for moderate risk taking. Risks are rationally assessed and evaluated before committing resources especially long term profits.

# CHAPTER SIX

# SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

## 6.1 Summary of Findings

This study examines effect of strategic orientation and entrepreneurial development on the performance of Information and Communication Technology firms in North-Central, Nigeria. A summary of the findings of the study are;

There is significant relationship between market orientation and competitive advantage of the Information and Communication Technology firms in North-Central, Nigeria.

Technology orientation significantly influence product innovation of Information and Communication Technology firms in North-Central, Nigeria

Resources orientation significantly influence competitive advantage of Information and Communication Technology firms in North-Central, Nigeria

There is significant relationship between learning orientation and service quality of Information and Communication Technology firms in North-Central, Nigeria

There is significant relationship between entrepreneurial orientation and competitive advantage of Information and Communication Technology firms in North-Central, Nigeria

## 6.2 Conclusions

This dissertation investigates effect of strategic orientation and entrepreneurial development on the performance of Information and Communication Technology firms in the North Central Nigeria. However, the study provided empirical evidence on the association between strategic orientation (proxy by marketing orientation, technology orientation, learning orientation, resources orientation and entrepreneurial orientation) and entrepreneurial development (proxy by product innovation, service quality and competitive advantage) of Information and Communication Technology firms in the North-Central, Nigeria.

Specifically, the study concluded that that marketing orientation has a significant and positive effect on competitive advantage of Information and Communication Technology firms in the

North-Central Nigeria indicating that marketing orientation creates sustained competitive advantage by providing customers with products and services with superior value in comparison with its competitors.

The study also concluded that there is a positive and significant association between technology orientation and product innovations of Information and Communication Technology firms in the North-Central Nigeria suggesting that technology orientation accounts for introduction of new products/services as well as causing incremental changes within the new product success. This implies that technologically oriented firms devote their resources to acquiring new and advanced technologies and developing new processes, products and services.

The study concluded that learning orientation has a positive and significant effect on service quality of the ICT firms operational in the North - Central region of Nigeria. This implies that learning orientation allows organizations to learn from errors and improve their internal organization and leads to improvements of existing products, services and most likely leads to innovations that are more radical and improved quality service.

The study further concluded that revealed that resources orientation have a significant and positive effect on competitive advantage of the Information and Communication Technology (ICT) firms in North-Central, Nigeria. This implies that resources orientation creates sustained competitive advantage by developing and deploying unique and costly-to-imitate (bundles of) resources for the purpose of exploiting environmental opportunities and neutralizing threats resulting in a unique (superior valuable) resource base that is immobile and heterogeneous.

Finally, the study concluded that entrepreneurial orientation has a positive and significant effect on the competitive advantage of Information and Communication Technology firm in North-Central Nigeria suggesting that for a company to survive in a competitive market;

firms must be entrepreneurial orientated by changing and shaping the environment to exploit uncertain business opportunities.

However, by implementing different strategic orientations dimensions will enable ICT firms to develop entrepreneurial capabilities that in turn allow them to improve their performance, recreate their main strategies in the form of exploring different dimensions of strategic orientation, rediscover the ICT sector they are in; in short, they need to have the ability to be different from their competitors and create a difference in their products and services.

The final conclusion for this research was drawn based on the result of the study. In consonance with the foregoing, the study concludes that strategic orientation and entrepreneurial development construct determines the performance of Information and Communication Technology firms in the North-Central, Nigeria. Implementing strategic orientation and entrepreneurial development strategy increase the performance of Information and Communication Technology firms in the North-Central, Nigeria.

## 6.3 Recommendations

Based on the findings of this study, the following recommendations are suggested;

Firms must continually adapt to the changing environment and new market opportunities and align their internal organization accordingly to exploit, develop or obtain the necessary resources. If they cannot attain resources and/or activities themselves, they must use external sources like strategic alliances, mergers or acquisitions to expand market share. Marketing oriented firms must be aware of internal and external challenges when searching for market opportunities based on customer and competitor knowledge. An overreliance on customer input, however, can harm the discovery of new markets.

In order to gain competitive advantage, firms should be more strategically oriented by re-defining themselves in a very different way, recreate their main strategies in the form of innovative strategies, rediscover the sector they are in; be different from their competitors and

create a difference in their products and services. As a result, performing innovation strategies successfully is possible only with a strategic flexibility.

ICT firms in Nigeria should either develop incremental technologies or adopt advanced technologies through licensing or joint ventures with foreign firms who entered the local market with new or advanced technologies. They must be highly technologically orientated to customize technologies to suit the local market demands. This could encourage policymakers in Nigeria to invest in technology centers and institutions to facilitate and finance technologies across different industries. Therefore, managers of firms looking to enhance business performance are advice to consider innovation as a mediating factor for technology orientation to achieve better business performance for their firms.

For firms to improve on its service quality, they must be learning oriented. There is a need for learning orientation that provides an open-minded set and commitment to learn with shared vision. It is believed that a more learning-oriented organization has greater absorptive capacity to learn from outside and generate discontinuous innovations with double loop learning.

ICT firms should promote entrepreneurship development initiatives that will enhance innovation and creativity in the sector. They should also ensure that subscribers and customers get value for money; address the vexed issues of unsolicited text messages, credit deductions and exploitative tendencies of telecoms service providers.

## 6.4 Contributions to Knowledge

Overall, this study contributes by addressing some major gaps in prior literature investigating the relationship between strategic orientations and entrepreneurial development. The relationships between the different dimensions of strategic orientations and entrepreneurial development construct in this study is unique have hardly been touched upon in prior literature, Firstly, our results provide first-hand empirical support on how the different untapped strategic orientation dimensions in literature like learning, resources and technology

orientations affects entrepreneurial development construct (product innovation, competitive advantage and service quality).

Secondly, the study extended the literature of strategic orientation and entrepreneurial development with particular reference to the Information and Communication Technology firms operational in Nigeria which has remained an uncharted territory. Specifically, in terms of the managerial contribution to ICT sector in Nigeria, the study was able to establish that successful ICT companies do simultaneously balance technology and customer focus, and moreover, do so by entrepreneurial, proactive, innovative behaviour that may be assisted by an orientation towards learning, resources availability, open minded attitudes and a shared vision of the optimal direction of the firm. The result of this study enables Information and Communication Technology companies to develop a more holistic view and awareness on the different strategic directions of the firm.

This study contributes to the theoretical development of strategic orientation. It helps to generate the path forward for a worldwide applicable theory of strategic management by identifying and empirically testing a collective of viable components of effective strategic orientation programs. While the relative individual influence of each of these components remains indeterminate; collectively, they are associated with competitive advantage, product innovation, service quality and competitive advantage.

## 6.5 Suggestions for Further Research

Considering the limitations of the present study, there are promising avenues for future research. Future research may be conducted in other geo political zone and industry in Nigeria by modifying some of the dimensions found in the present study. Such studies could enrich knowledge on variables and make the results as generalizable as possible in the evaluation of entrepreneurial development within the strategic orientation settings.

More research using other methodologies like the structural equation modeling and Path-way analysis is necessary to examine how the individual components of the different strategic dimensions affect the entrepreneurial development components.

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## APPENDIX I

## RESEARCH QUESTIONNAIRE

## LETTER TO RESPONDENTS

Department of Business Administration,
Faculty of Management Sciences,
Nnamdi Azikiwe University Awka,
Anambra State, Nigeria.

September 12, 2018.

Dear Respondent,

### REQUEST TO COMPLETE QUESTIONNAIRE ITEMS

I am a Ph.D Student in the above mentioned Institution. I am carrying out a research on the topic, **Strategic Orientation and Entrepreneurial Development of Information and Communication Technology (ICT) Firms in North-Central, Nigeria.**

Consequently, I humbly solicit your kind cooperation in completing the accompanying questionnaire attached below as accurately as possible. The questionnaire is designed only to collect data for the study. It is purely a preliminary study for academic research purpose. All information and responses provided will be handled or treated with utmost confidentiality and only for the purpose of the research.

You have assurances of my highest regards

Thank you.

Yours faithfully,

IGOMU, Joseph Augustine
**(Researcher) 08077614286**

## RESEARCH QUESTIONNAIRE

**SECTION A:** PERSONAL DATA

1. Gender (a) Male [ ] (b) Female [ ]
2. Age (a) 25-30 [ ] (b) 31-40 [ ] (c) 41-50 [ ] (d) 51 and above [ ]
3. Educational Qualification(s) (a) WAEC/Grade II/NABTEC [ ] (b) OND/NCE /ND [ ] (c) B.Sc /HND [ ] (d) Postgraduate [ ]
4. Duration of Employment (a) Less than 1 year [ ] (b) 1-5 Years [ ] (c) 6 - 10 Years [ ] (d) More than 10 Years and above [ ]
5. Designation and Rank of Respondent: Manager, [ ] Middle Level Manager [ ] Senior Manager
6. Name of Firm(s)……

**Section B1: Strategic Orientation Dimensions**

**Note:** Strongly Agree = SA, Agree = A, Neutral = N, Disagree = D, Strongly Disagree = SD

| Item No. | Item Description | SA | A | U | D | SD |
|---|---|---|---|---|---|---|
| **Q1** | ***Market Orientation*** | | | | | |
| 1. | Our strategy for competitive advantage is based on our understanding of customer needs | | | | | |
| 2. | Our firm encourages internal sharing of market information to understand consumers/competitors behaviour. | | | | | |
| 3. | Management of the firm understand how everyone in our firm can contribute to creating customer's value | | | | | |
| 4. | Our business strategies are driven by our beliefs about how we can create greater value for customers | | | | | |
| 5. | Our company understands how everyone in our company can contribute to creating customer's value | | | | | |
| **Q2** | ***Entrepreneurial Orientation*** | | | | | |
| 6. | My firm is very aggressive and intensely competitive rather than making no special effort to take business from the competition | | | | | |
| 7. | My firm prefers to design its own unique new processes and methods of production rather than adopting methods and techniques that others have developed and proven | | | | | |
| 8. | In dealing with competition, my firm typically responds to action which competitors initiate as compared with initiating action which the competition then responds to | | | | | |
| 9. | The top managers of my firm have a strong proclivity for low risk projects (with normal and certain rates of return) rather | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| | than high risk projects (with chances of very high return) | | | | | |
| 10. | When confronted with decision-making situations involving uncertainty, my firm typically adopts a cautious, "wait-and-see" posture in order to minimize the probability of making costly mistakes/decisions (as compared with a bold, aggressive posture to maximize the probability of exploiting potential opportunities) | | | | | |
| **Q3** | ***Resources Orientation*** | | | | | |
| 11. | We constantly strive to ensure that our resources cannot be easily identified by competitors | | | | | |
| 12. | We work to ensure our resources act as triggers for collaborative problem solving with stakeholders | | | | | |
| 13. | Our resources are the principle drivers used to develop strategies that enable us to achieve efficiency or effectiveness | | | | | |
| 14. | We share key resources across departments to ensure they have a clearly identified owner | | | | | |
| 15. | We try to make certain that our competitors find it difficult to determine the resources that may lead to our success | | | | | |
| **Q4** | ***Learning Orientation*** | | | | | |
| 16. | The basic values of this organization include learning as a key to improvement | | | | | |
| 17. | Learning in my organization is seen as a key commodity necessary to guarantee organizational survival | | | | | |
| 18. | All employees are committed to the goals of this organization | | | | | |
| 19. | We are not afraid to reflect critically on the shared assumptions we have made about our customers | | | | | |
| 20. | Managers basically agree that our organization's ability to learn is the key to our competitive advantage | | | | | |
| **Q5** | ***Technology Orientation*** | | | | | |
| 21. | Our firm’s policy is to adopt up-to-date technologies | | | | | |
| 22. | Our firm purchases and uses technologies to position itself ahead of competitors | | | | | |
| 23. | Our firm often strives to be first to try out new methods and technologies | | | | | |
| 24. | Our firm frequently improves internal processes such as speed, reliability and information management | | | | | |
| 25. | Our firm allocates resources for investments in latest technologies and future forecasted technological changes | | | | | |

**Section B2: Entrepreneurship Development Measures**

**Note:** Strongly Agree = SA, Agree = A, Neutral = N, Disagree = D, Strongly Disagree = SD

| | | | | | | |
|---|---|---|---|---|---|---|
| **Q1** | ***Product Innovation*** | | | | | |
| 26. | Our company introduced and implemented new product during the last three years that were perceived to be new to the industry in which our company operates | | | | | |
| 27. | New ideas and methods are always introduced into our products | | | | | |
| 28. | There is enhancement of employees' skills for better performance | | | | | |
| 29. | There is advancement of technology and equipment | | | | | |
| 30. | Our company continuously improves on its products | | | | | |
| **Q2** | ***Competitive Advantage*** | | | | | |
| 31. | We are witnessing demand for our products and services from customers who never bought them before | | | | | |
| 32. | The company reaches economies of scale through higher volume and lower production cost | | | | | |
| 33. | We grow sales in a market segment through intensive marketing | | | | | |
| 34. | We have strategy for overcoming competitive threats and taking advantage of marketing opportunities | | | | | |
| 35. | We form strategic partnership with distribution firms to boost market share | | | | | |
| **Q3** | ***Service Quality*** | | | | | |
| 36. | We provide reliable services at the time it promises and show sincere interest in solving customers problem | | | | | |
| 37. | The responsiveness shown by our company's customer service through their help line gives prompt service and are always willing to respond to customer requests, even if busy | | | | | |
| 38. | Our firm provides value for money paid for products or services | | | | | |
| 39. | The company has appropriate ICT facilities for providing excellent services | | | | | |
| 40. | Employees are knowledgeable about their work | | | | | |
| ***Q4*** | ***Competitive Advantage*** | | | | | |
| 41. | Our firm has better quality compared to peers | | | | | |
| 42. | We have competitive products/services compared to peers | | | | | |
| 43. | We provide value for money compared to peers | | | | | |
| 44. | Our firm has innovative products/services compared to peers | | | | | |
| 45. | Our firm have the lowest cost compared to peers | | | | | |

Thank you for your cooperation

## APPENDIX II

**Selected ICT Firms in North - Central Nigeria**

1. Multinational Mobile Telecommunication (MTN)
2. Globalcom Limited (GLO)
3. Google Nigeria
4. MainOne
5. Huawei Technologies
6. Interswitch Limited
7. Microsoft Nigeria
8. Computer Warehouse Group
9. Airtel Nigeria
10. Zinox Technologies Limited
11. Omatek
12. DataFlex
13. IBM Nigeria
14. Chams Plc
15. Cloudware Technologies
16. DHL Express Nigeria
17. DAAR Communications (AIT)
18. Oracle Nigeria
19. Galaxy Backbone
20. Nigerian Communications Satellite Limited (NIGCOMSAT)
21. Grace FM 95.5
22. Joy FM 96.5
23. Panet Technologies Ltd
24. Xttech Global Services
25. United Parcel Services Nigeria.

## APPENDIX III

List of selected ICTs firms included for data collection legally registered at Corporate Affairs Commission in Nigeria

**FCT Abuja**

| S/No | Names of ICTs Firms | Location / Address | Email Address |
|---|---|---|---|
| 1. | Multinational Mobile Telecommunication (MTN) | Plot 2784, Shehu Shagari Way, Maitama, Abuja. | Customercare3@mtn.com |
| 2. | Globalcom Limited (GLO) | FCT Abuja 1: Plot 1101, Aminu Kano Crescent, Wuse 2, Abuja. | abuja.shop@gloworld.com |
| 3. | Google Nigeria | FCT Abuja: | |
| 4. | MainOne | FCT Abuja: Plot 1061, Leadway House Cadastral Avenue Central Business District Abuja. | info@mainone.net |
| 5. | Huawei Technologies | 3rd & 4th Floor, Oakland Centre, No.48, AguiyiIronsi Street, Maitama, Abuja, Nigeria. | www.huawei.com |
| 6. | Interswitch Limited | 6th floor, Churchgate Towers, 473 Constitution Avenue Central Business District, Abuja | support@interswitchgroup.com |
| 7. | Microsoft Nigeria | 29, Kampala Crescent, off Cairo Street, OffAdetokunboAdemola Crescent, Wuse II, Abuja. | connect@microsoft.com support@microsoft.com |
| 8. | Computer Warehouse Group | Coscharis Motors Building, 2nd Floor, Plot 388, Constitution Avenue, Central Business Area, Abuja. | info.abuja@cwg-plc.com |
| 9. | Airtel Nigeria | Plot 374a, AdetokunboAdemola WayWuse 2, Abuja. | airtelpremier@ng.aitel.com |
| 10. | Zinox Technologies Limited | No. 20, Portharcourt Crescent,Off Gimbiya Street Area 11,Garki- Abuja | enquiries@zinoxtechnologies.com |

| | | | |
|---|---|---|---|
| 11. | Omatek | Plot 1087, Kolda Link Street, Wuse II, Abuja FCT Nigeria | info@omatekcomputers.com |
| 12. | DataFlex | Plot 1 Ilorin Street, Garki Area 8,Abuja, Nigeria | abuja@dataflexng.com |
| 13. | IBM Nigeria | 4th Floor, River Building 83, Ralph Shodeinde Street, Abuja, FCT Nigeria | www.ibm.com/ng/en/ |
| 14. | Chams Plc | Chams Plc,, 8 Ahmadu Bello Way, Abuja. | info@chams.com |
| 15. | Cloudware Technologies | UE House, 9, A Avenue, Citec Estate, Mbora District, Abuja. | info@cloudware.ng |
| | DHL Express Nigeria | 63 AdemolaAdetokunbo Crescent, Wuse II, Abuja. | www.dhl.com.ng 08093018106 |
| 17. | DAAR Communications (AIT) | DAAR Communications ComplexKpaduma HillsLadiLawal Drive Off Gen. T.Y. DanjumaStreetAsokoro – Abuja. | info@aitonline.tv |
| 18. | Oracle Nigeria | 2nd Floor Oakland centre, Plot 2940 AguiyiIronsi Street,Maitama, Abuja. | oracle.com/ng |
| 19. | Galaxy Backbone | FCT Abuja: 61 AdetokunboAdemola Crescent Wuse2 Abuja, Nigeria. | ServiceDesk@galaxybackbone.com.ng |
| 20. | Nigerian Communications Satellite Limited (NIGCOMSAT) | FCT Abuja: NIGCOMSAT LTD Umaru Musa Yar'Aua Express Way Lugbe, Abuja – Nigeria. | info@nigcomsat.gov.ng |

**Kogi State**

| S/No | Names of ICTs Firms | Location / Address | Email Address |
|---|---|---|---|
| 1. | Multinational Mobile Telecommunication (MTN) | 64 Muritala Mohammed Way,Lokoja | Customercare3@mtn.com |
| 2. | Globalcom Limited (GLO) | Lokoja: Plot 11/ 13 Block 6 Along I.B.B Road Lokoja. | lokoja.shop@gloworld.com |
| 3. | Grace FM 95.5 | 35, Mount Patti Road Lokoja. | |
| 4. | Airtel Nigeria | KogiState | airtelpremier@ng.aitel.com |

**Benue State**

| S/No | Names of ICTs Firms | Location / Address | Email Address |
|---|---|---|---|
| 1. | Multinational Mobile Telecommunication (MTN) | No. 17 Railway byepass high level Makurdi. | Customercare3@mtn.com |
| 2. | Globalcom Limited (GLO) | Makurdi: 7, Otukpo Road, Makurdi, Benue State. | makurdi.shop@gloworld.com |
| 3. | Joy FM 96.5 | Makurdi Road, Otukpo, Benue State. | joyfmnewsroom@gmail.com |
| 4. | Airtel Nigeria | Makurdi: Plot 1332, OgiriOkoh Road, Old GRA, Makurdi. | airtelpremier@ng.aitel.com |
| 5. | Panet Technologies Ltd | Makurdi, Benue State. | Panet_cs@panettech.com |
| 6. | Xttech Global Services | By Federal Pay Office, Behind NKST Secondary School, High-level.Makurdi, Benue State | infor@xtechglobalservices.com |

**Nassarawa State**

| S/No | Names of ICTs Firms | Location / Address | Email Address |
|---|---|---|---|
| 1. | Multinational Mobile Telecommunication (MTN) | Plot 65/68 Jos Road Lafia, Nasarawa State | Customercare3@mtn.com |
| 2. | Globalcom Limited (GLO) | Lafia: No 1, Jos Road, Lafia, Nassarawa State. | lafia.shop@gloworld.com |
| 3. | Airtel Nigeria | | airtelpremier@ng.aitel.com |

**Niger State**

| S/No | Names of ICTs Firms | Location / Address | Email Address |
|---|---|---|---|
| 1. | Multinational Mobile Telecommunication (MTN) | Godana House, No. 12 Paiko Road Minna, Niger State. | Customercare3@mtn.com |
| 2. | Globalcom Limited (GLO) | Minna: Conoil Mega Filling Station BossoRd,TungaalongMinna, Niger State. | minna.shop@gloworld.com |
| 3. | Airtel Nigeria | Minna: 131 Gwari Road, Beside BakoKotangora Stadium, Minna. | airtelpremier@ng.aitel.com |
| 4. | United Parcel Services | 42 Old Airport Road, Minna, Niger State. | |

**Plateau State**

| S/No | Names of ICTs Firms | Location / Address | Email Address |
|---|---|---|---|
| 1. | Multinational Mobile Telecommunication (MTN) | MTN Jos 1 Connect/1B Ibrahim Taiwo Road, Jos, Plateau State | Customercare3@mtn.com |
| 2. | Globalcom Limited (GLO) | Jos: Conoil Building, 13 M/Mohammed Way, Opposite Leventis, Jos. | jos.shop@gloworld.com |
| 3. | Airtel Nigeria | Jos: 13 Murtala Muhammed Way, Jos. | airtelpremier@ng.aitel.com |

**KwaraState**

| S/No | Names of ICTs Firms | Location / Address | Email Address |
|---|---|---|---|
| 1. | Multinational Mobile Telecommunication (MTN) | 24, Ahmadu Bello way, G.R.A. Ilorin, Kwara State | Customercare3@mtn.com |
| 2. | Globalcom Limited (GLO) | Ilorin: ETB Building, Ibrahim Taiwo Road, Ilorin, Kwara State. | Ilorin.shop@gloworld.com |
| 3. | Airtel Nigeria | 130 Ibrahim Taiwo Road<br><br>Ilorin | airtelpremier@ng.aitel.com |